



# South Carolina Emergency Management Division

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## SOUTH CAROLINA 2008 EARTHQUAKE PLAN

### DOCUMENT TRANSMITTAL SHEET

**DATE: February 2009**

Enclosed is the 2008 *South Carolina Earthquake Plan*. Substitute the entire enclosure for the plan you currently possess. The 2008 SC Earthquake Plan is available at SCEMD's web site <http://www.scemd.org/>. Additional limited copies in either printed or CD Rom format are available upon request.

#### Summary of changes:

- Improvements to the Operational Area concept.
- Beaufort and Colleton Operational Areas have been added to the existing list.
- The ESF Earthquake Checklist is Attachment A for each annex.
- Tabs removed and the information incorporated as attachments into respective annexes.
- Updated the loss estimation population data based on 2008 estimates.
- Added Transportation Entry and Re-entry map and table.

A vertical black bar in either margin identifies changes.

Please sign and return this document transmittal sheet within ten (10) days, indicating you have received the SC Earthquake Plan 2008.

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#### **RETURN TO:**

Tammie L. Dreher  
Earthquake Program Manager  
Office of the Adjutant General  
S.C. Emergency Management Division  
2779 Fish Hatchery Road  
West Columbia, SC 29172

Received \_\_\_\_\_ number copy(s) of the South Carolina Earthquake Plan.

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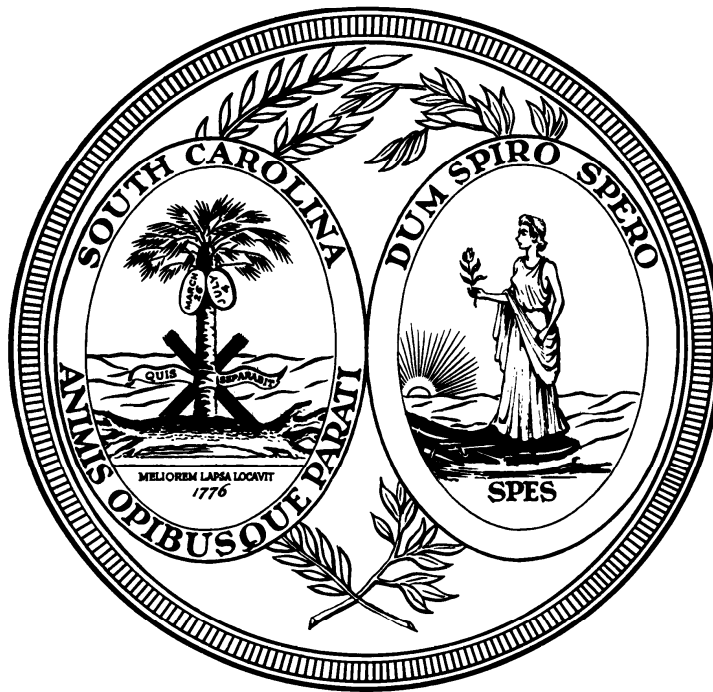
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# South Carolina Earthquake Plan

## Appendix 3 South Carolina Emergency Operations Plan



*South Carolina Emergency  
Management Division*

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The State of South Carolina  
Military Department



OFFICE OF THE ADJUTANT GENERAL

STANHOPE S. SPEARS  
MAJOR GENERAL  
THE ADJUTANT GENERAL

STATEMENT OF EXECUTION  
SOUTH CAROLINA EARTHQUAKE PLAN

SEE DISTRIBUTION LIST

The purpose of the South Carolina Earthquake Plan is to provide a framework of actions necessary for emergency operations in response to a large earthquake in South Carolina. The South Carolina Earthquake Plan is Appendix 3 to the South Carolina Emergency Operations Plan (SCEOP). The Plan is effective for planning purposes upon receipt, and will be activated by the Director, South Carolina Emergency Management Division, when directed by the Governor of South Carolina.

A handwritten signature in cursive script, reading "R. Osborne".

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Ronald C. Osborne, Director  
S.C. Emergency Management Division  
Office of the Adjutant General

February 2009

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## RECORD OF CHANGES

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### South Carolina Earthquake Plan

Record of Changes				
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## GLOSSARY

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Aftershocks - Earthquakes that follow the largest shock of an earthquake sequence. They are usually smaller than the main shock.

Completely Destroy - Unusable for occupancy

Ground Motion - Vibration and shaking of the ground during an earthquake is the most far-reaching effect and causes the most damage to building infrastructures, lifelines, etc.

Epicenter - The location of the earth's surface that lies directly above the focus of an earthquake.

Focus - The point within the earth at which rupture commences and the earthquake originates.

HAZUS - Hazards United States (HAZUS) is a standardized geographic information system (GIS) based loss estimation tool to estimate potential losses from earthquakes, wind, and flood.

Intensity - A number (written as a Roman numeral) describing the severity of an earthquake in terms of its effects on the earth's surface and on humans and their structures. The best-known method for expressing intensity is the Modified Mercalli Scale.

Isoseismal - A contour or lines on a map representing points of equal intensity for a particular earthquake.

Long-Term Recovery - Focus on redeveloping communities and restoring the economic viability of the disaster area(s).

Liquefaction - The ground temporarily loses its strength and behaves as a viscous fluid (similar to quicksand) rather than a solid.

Magnitude - A number that characterizes the relative size of an earthquake. It measures the total amount of energy released during an earthquake.

Moderate Damaged (At) – A building requiring inspection before reuse.

Operational Area (OA) - Geographically isolated areas within a large disaster area. The operational areas are based on infrastructure damage/barriers, easily recognized geographic features, political boundaries, and population.

Operational Area Transportation Entry and Re-Entry Points. Pre-identified locations in an Operational Area where resources (equipment, supplies, personnel, etc.) will be received and later deployed within the area.

Rapid Response Team (RRT) - Specialized teams that provide detailed damage assessment and human service assistance within a specific Emergency Support Function (ESF).

## Glossary

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Relocatable Facility - A mobile classroom, typically located on school property and used by students.

Seismicity - The geographic and historical distribution of earthquakes.

Seismic Zone - An area of seismicity probably sharing a common cause. Example: "Middleton Place-Summerville Seismic Zone (MPSSZ)."

Seismogram - A record written by a seismograph in response to ground motions produced by an earthquake.

Seismograph - A term that refers to the seismometer and its recording device as a single unit.

Seismometer - An instrument that detects and records the motion of the Earth's surface.

## ACRONYMS

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ARC – American Red Cross

B&CB - Budget and Control Board

CAP – Civil Air Patrol

CFR – Code of Federal Regulations

CIO – Division of State Chief Information Officer (Budget and Control Board)

COG – Council of Government

CST – Civil Support Team

CULPH – Clemson University Livestock-Poultry Health

DCE – Federal Defense Coordinating Element

DCO – Defense Coordinating Officer

DFO – Disaster Field Office

DHS - Department of Homeland Security (Federal)

DEP&R - Directorate of Emergency Preparedness & Response (Federal)

DMAT - Disaster Medical Assistance Team (Federal)

DMORT - Disaster Mortuary Operational Response Team (Federal)

DOD – Department of Defense (Federal)

DPS - Department of Public Safety

EAS - Emergency Alert System

ECN - Emergency Communications Network

ECV - Emergency Communications Vehicle

EMAC - Emergency Management Assistance Compact

EOC - Emergency Operations Center

EPA – Environmental Protection Agency (Federal)

## Acronyms

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EQC – Environmental Quality Control

ESF - Emergency Support Function

ETA - Estimated Time of Arrival

ETV - Educational Television

FAA – Federal Aviation Administration (Federal)

FCO - Federal Coordinating Officer

FEMA - Federal Emergency Management Agency (DHS-EP&R) (Federal)

FRCC – Farrow Road Command Center

GETs – Government Emergency Telephone Services

GIS – Geographic Information System

HAZMAT – Hazardous materials

HAZUS - Hazards United States

HF – High Frequency

IAP – Incident Action Plan

IC – Incident Commander

ICP – Incident Command Post

ICS - Incident Command System

IMST – Incident Management Support Teams

IMAT – Incident Management Assist Teams (FEMA)

JISCC - Joint Incident Site Communications Capability

LART – Large Animal Rescue Team

LGR – Local Government Radio

LLR – Department of Labor, Licensing and Regulation

LSA - Logistical Staging Areas

LST – Landing ship tanks

LZ - Landing Zone

MERS - Mobile Emergency Response Support (Federal)

MHz – Megahertz

MMI – Modified Mercalli Intensity

MMO – Materials Management Office

MMRT – Midlands Medical Response Team

MOA – Memorandum of Agreement

MOU – Memorandum of Understanding

MPSSZ - Middleton Place-Summerville Seismic Zone

MRE – Meals Ready to Eat

NAWAS - National Warning System (Federal)

NDMS - National Disaster Medical System (Federal)

NEIC – National Earthquake Information Center

NIMS - National Incident Management System

NRF - National Response Framework

NOAA - National Oceanic and Atmospheric Administration

OPCON - Operating Condition

OTAG – Office of The Adjutant General

OTG - Operations Tasking Group

PIO - Public Information Officer

POC – Points of Contact

## Acronyms

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RACES - Radio Amateur Civil Emergency Service

RNA - Rapid Needs Assessment Team (FEMA)

ROC - Region IV Operations Center (FEMA)

RRT - Rapid Response Team

SA – Salvation Army

SA – Staging Area

SACC - Southern Area Coordination Center

SAD – State Active Duty

SAFE – State Animal Fund for Emergencies

SAT - State Assessment Team

SCDC – SC Department of Corrections

SCDHEC – SC Department of Health and Environmental Control

SCDMH – SC Department of Mental Health

SCDNR – SC Department of Natural Resources

SCDOA – SC Department of Agriculture

SCDOC – SC Department of Commerce

SCDOE – SC Department of Education

SCDOI – SC Department of Insurance

SCDOT – SC Department of Transportation

SCDPS – SC Department of Public Safety

SCDSS – SC Department of Social Services

SCDOT – SC Department of Transportation

SCEMD - SC Emergency Management Division

SCEOP - SC Emergency Operations Plan

SCETV – SC Educational Television Network

SCFC – SC Forestry Commission

SCHP – SC Highway Patrol

SCNG – SC National Guard

SCORERP - SC Operational Radiological Emergency Response Plan

SCPPP – SC Probation, Parole and Pardon Services

SCPRT – SC Parks, Recreation and Tourism

SCTF-1 – SC Urban Search & Rescue Team

SCTRERP – SC Technical Radiological Emergency Response Plan

SEOC - State Emergency Operations Center

SERT - State Emergency Response Team

SLED – South Carolina Law Enforcement Division

SNPS – Strategic National Pharmaceutical Stockpile

SOP – Standard Operating Procedures

SRS – Savannah River Site

SSTV – Slow Scan TV

STOLS - Surface Towed Ordnance Location System

TAT – Technical Assistance Team (DHEC’s HAZMAT TEAM)

UC – Unified Command

US&R - Urban Search and Rescue team (FEMA)

USCG – US Coast Guard (Federal)

VMAT - Veterinary Medical Assistance Team (Federal)

## Acronyms

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VOLTAG – Voluntary Technical Assistance Group

WP - Warning Point



## South Carolina Earthquake Plan Basic Plan

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### I. INTRODUCTION

- A. The SC Earthquake Plan is Appendix 3 to the SC Emergency Operations Plan (SCEOP) that assigns responsibilities and actions to state agencies and organizations prior to the occurrence of a damaging earthquake in order to be responsive after the occurrence.
- B. General. Unlike other natural disasters, earthquakes occur without warning and could strike anytime. The unpredictable nature of an earthquake and aftershocks will cause great physical and societal impacts over a broad geographic region. It takes years for a community to recover from a damaging earthquake.
- C. Specific
  - 1. This Appendix contains a loss estimation scenario similar in intensity to the August 31, 1886, event that killed 60 people and damaged much of Charleston. The loss estimation was derived from the Comprehensive Seismic Risk and Vulnerability Study for the State of South Carolina, 2001, using the Federal Emergency Management Agency (FEMA) Hazards United States (HAZUS). The study, based on scientific research, provided information about the likely effects of earthquakes on the current population and on contemporary structures and systems, including roadways, bridges, homes, commercial and government buildings, schools, hospitals, and water and sewer facilities.
  - 2. This Appendix supports the National Response Framework (NRF). The National Response Framework (NRF) presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response.
- D. This Appendix has two components:
  - 1. **Basic Plan** contains responsibilities, operational concepts, functional task assignments, and attachments which provide specific planning guidance for earthquake response actions. The attachments are:
    - a. Attachment A      Earthquake Checklist:  
*Lists tasks to complete following an earthquake.*
    - b. Attachment B      Planning Scenario:  
*Describes a worst-case earthquake scenario for planning and response purpose.*

- c. Attachment C: Operational Area Planning:  
*Details a response and resource deployment concept for areas that may be isolated as a result of severe transportation infrastructure damage.*
    - Figure 1: Operational Area Transportation Entry/Re-entry Map:  
*Identifies locations and routes (aerial/ground) where resources will be received and deployed.*
    - Table 1: Loss Estimation for Charleston, Berkeley, Dorchester, Beaufort, and Colleton Counties:  
*Provides loss estimates for operational areas expected to receive significant damage.*
    - Table 2: Critical Resource Needs Assessment:  
*Identifies estimates on resource availability, shortfall, and where additional resources can be obtained.*
  - d. Attachment D: Earthquake Intensity Scale  
*Lists typical effects of an earthquake in various magnitude ranges.*
  - e. Attachment E: Earthquake Intensity Map  
*Illustrates the strength of ground shaking at particular locations.*
  - f. Attachment F: Earthquake Liquefaction Probability Map  
*Illustrates the liquefaction potential at particular locations.*
- 2. **Individual annexes** utilize the Emergency Support Function (ESF) concept for each of the major response functions/activities. Annexes describe the hazard-specific concept of operations, actions, and responsibilities that pertain to the function being covered. The ESF annexes will have attachments that are appropriate to the ESF response and operating plans for an earthquake affecting South Carolina.

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E. Mission

To provide operational concepts unique to earthquake planning and response, and assign responsibilities to State agencies to meet the needs of local governments following a catastrophic earthquake.

**II. SITUATION AND ASSUMPTIONS**

A. Situation

1. An earthquake is a sudden, rapid shaking or trembling of the earth's surface, and could be highly destructive. It will occur without warning, and a strong earthquake will cause severe damage and a large number of casualties over a wide area. Aftershocks may occur for some period of time, but will diminish gradually over the course of time.
2. There are two methods of measuring earthquakes: intensity and magnitude.
  - a. Intensity is measured by the Modified Mercalli Intensity (MMI) Scale that is a subjective measure of damage based on the observed effects of the earthquake. The scale categorizes intensity from I (Micro) to XII (Rate Great). The Charleston Earthquake of 1886 MMI is estimated at Intensity X.
  - b. Magnitude (M) is a measure of an earthquake's size. Most earthquakes M less than 3.9 would not cause any significant damage, and may only be felt by a few people in the area of occurrence. An M 6.0 earthquake is typically the threshold for causing serious damage. Earthquake magnitude (M) classifications are:
    - Great =  $M > 8.0+$
    - Major =  $M 7.0$  to  $7.9$
    - Strong =  $M 6.0$  to  $6.9$
    - Moderate =  $M 5.0$  to  $5.9$
    - Light =  $M 4.0$  to  $4.9$
    - Minor =  $M 3.0$  to  $3.9$
    - Micro =  $M < 3.0$
3. Most earthquakes occur along faults or breaks between massive continental oceanic/tectonic plates that collide, slide, or separate, creating earthquakes. South Carolina, however, is located in the middle

of the North American tectonic plate. Consequently, earthquakes occur less frequently, but more violently, over a much greater area due to sub-surface geological conditions.

4. Although a great earthquake has not occurred in South Carolina since 1886, there is as great a potential of a magnitude 6 or higher earthquake to kill people and cause damage in the State as there is in California. South Carolina experiences several earthquakes annually. These are typically low-level events with magnitudes ranging from less than 1.0 to approximately 3.0 but generally not felt by people. About 70 percent of these occur in the vicinity of the epicenter of the 1886 Charleston earthquake in a region referred to as the Middleton Place-Summerville Seismic Zone (MPSSZ).
5. South Carolina has experienced much stronger and damaging earthquakes in the past. Two significant earthquakes in the State include the 1886 Charleston earthquake (estimated at M 7.3) and the 1913 Union County earthquake (estimated at M 4.5). The 1886 Charleston earthquake was the most damaging earthquake to occur in the Eastern United States.
6. A great earthquake occurring anywhere in the State would result in immediate activation of the State Emergency Operations Center (SEOC) and the State Emergency Response Team (SERT). See Attachment A, Earthquake Checklist of this Annex. However, the most probable location for a great earthquake event would be Charleston, South Carolina with a similar M 7.3. See Attachment B, Planning Scenario to the Basic Plan.
7. Facts about the 1886 Charleston, South Carolina Earthquake:
  - a. Occurred August 31, 1886. The main shock was followed by an aftershock two minutes later, and many more shocks were felt over the next three years.
  - b. Time: 9:51 p.m. Eastern Standard Time
  - c.  $M = 7.3$
  - d. Intensity on Modified Mercalli Scale = X
  - e. Two epicenters were reported:
    - Woodstock, a railroad stop on the Southern Railway leading into Charleston located 21 miles northwest of Charleston.
    - Ravenel, a small town 23 miles southwest of Charleston.

- f. Felt over 2.5 million square miles (from Cuba to New York and Bermuda to the Mississippi).
- g. Approximately 60 persons lost their lives.
- h. Ninety percent of the brick structures in Charleston were damaged. (Today that would equate to approximately 24 million tons of debris.)
- i. Damaging secondary effects were fires, ruptured water and sewage lines, damaged wells, and flooding from a cracked dam in Langley, South Carolina.
- j. Dollar damage estimates in 1886 dollars were about \$5.5 million. (In today's dollars, that would equal to approximately \$900 million.)

**B. Assumptions**

- 1. The Governor will declare a State of Emergency and request a Presidential Declaration.
- 2. An earthquake of M 6.0 or greater could quickly exceed state and local resources. It is anticipated that a significant amount of external resources will be required for a disaster response. South Carolina will immediately request support from FEMA.
- 3. FEMA will activate the National Response Framework (NRF).
- 4. Damaged transportation roads may not be functional for many weeks or months.
- 5. Damage to transportation, communication, and other infrastructure systems will isolate communities, creating virtual islands within the disaster areas. For at least 72 hours after an earthquake, affected local governments and individuals will be attempting to meet their own emergency needs.
- 6. Significant aid from state and federal governments to local governments may not be available for 72 hours.
- 7. SCEMD will activate the Statewide Mutual Aid Agreement, Emergency Management Assistance Compact (EMAC), and established mutual aid agreements will be honored to the extent possible.
- 8. Shelters identified for use during other natural disasters may not be available in the impacted area. Sheltering may take place outside the impacted area.

9. SERT will report to the State Emergency Operations Center (SEOC), and the State Assessment Team (SAT) may be deployed.
10. The SEOC and county emergency managers in the damaged areas may need to establish alternate Emergency Operations Centers (EOC) due to possible structural damage to the primary EOC.
11. The SC Logistical Plan will be activated. The SC Logistical Plan is Attachment A to SCEOP.
12. The Catastrophic Plan will be activated. The Catastrophic Plan is Appendix 9 to SCEOP.
13. Tourist populations and business conventions and/or conferences will be occurring in the State.
14. SC is not recovering from any disaster that could hamper the State's response to an earthquake.

### **III. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES**

#### **A. General**

In the event of a strong earthquake ( $M \geq 6.0$ ), SERT will coordinate emergency operations in support of local EOCs. State agencies assigned specific missions as outlined in this Appendix will develop specific procedures and checklists necessary to accomplish assigned tasks.

#### **B. County**

1. When an earthquake occurs, local emergency managers and emergency responders will activate to respond to the disaster. All available resources within the damaged areas will be used to support lifesaving and property protection actions.
2. Under the conditions anticipated for a strong earthquake, the following responsibilities should be included in local government planning and preparation:
  - a. Participate in HAZUS training to be able to determine the estimated level of damage.
  - b. Develop earthquake response checklists for emergency response agencies.
  - c. Develop and/or enhance county communication systems to provide for back-up communications should primary systems fail.

- d. Use the Operational Areas Concept for earthquake planning.
  - e. Assist SCEMD in operational area planning to include identifying locations that could potentially serve as Incident Command Posts (ICP) and Operational Area Transportation Entry/Re-entry Points. The transportation entry points are pre-identified locations in an Operational Area where resources (equipment, supplies, personnel, etc.) will be received and later deployed within the area. The transportation entry/re-entry points could be roadways, waterways, airports, and heliports within the operational area. These points of entry are situation dependent and could change due to the severity of the earthquake. See Attachment C, Operational Area Planning for more information.
  - f. Assist ESFs in earthquake planning as required.
  - g. Establish and conduct earthquake mitigation and awareness public education programs.
  - h. Participate in earthquake response exercises to test functions and plans.
  - i. Ensure county alternate EOC has the ability to function in the event the primary EOC is inoperable.
  - j. Sign and participate in the Statewide Mutual Aid Agreement.
3. Local emergency managers will contact the SEOC as soon as possible and provide reports by the best operable communications system following the earthquake. The report should include but not be limited to the following information:
- a. The locations of collapsed structures with trapped persons.
  - b. Status of communications systems to include broadcast media.
  - c. Status of transportation infrastructures, i.e., bridges, roads, etc.
  - d. Locations to provide critical medical assistance.
  - e. The operational capability of critical facilities, i.e., hospitals, sewage and waste stations, electrical substations, etc.
  - f. Locations of major firefighting efforts and out-of-control fires.
  - g. Hazardous material releases and the impact on the general public.

- h. The extent of damaged areas.
  - i. Locations of facilities or open spaces that could serve as shelters.
  - j. Public safety needs, i.e., security, traffic control, and law enforcement.
- 7. Coordinate with ESF agency representatives, volunteer organizations, and local emergency managers to ensure a coordinated earthquake response.

C. State

- 1. SCEMD is the coordinating agency for disaster response and resource allocation. SCEMD responsibilities for earthquake planning include but are not limited to:
  - a. Prepare an Incident Action Plan (IAP) to direct response actions and resource allocations.
  - b. Use the Operational Area Concept for response and resource deployment to areas that will be isolated as a result of severe transportation infrastructure damage. See Figure 1, of Attachment C, of this Annex for Transportation Entry / Re-Entry Map.
  - c. Prepare earthquake loss estimates for operational areas expected to receive significant damage. See Table 1 of Attachment C of this Annex for Loss Estimation of Operational Areas.
  - d. Update the Critical Needs Assessment for earthquake response to include information on resource availability, shortfall, and where additional resources can be obtained. See Table 2 of Attachment C of this Annex for Critical Resource Needs Assessment.
  - e. Coordinate the use of Geographic Information System (GIS) and HAZUS information systems to display maps to assess, process, and display emergency information about the earthquake. See Attachments D, E, and F of this Annex for earthquake maps.
  - f. Coordinate and assist Rapid Response Teams (RRT) in developing earthquake Standard Operating Procedures (SOP) to include concept of operations, standardized reporting format, and communication needs.
  - g. Coordinate and assist in identification of infrastructure priorities for seismic aerial reconnaissance.



- h. Coordinate with county emergency managers and confirm potential locations for Operational Area Transportation Entry/Re-Entry Points. See Figure 1 of Attachment C of this Annex for map of transportation entry/re-entry points.
  - i. Coordinate with ESF agency representatives, volunteer organizations, and local emergency managers to ensure a coordinated earthquake response.
- 2. All SERT members will take the following actions after a strong earthquake:
  - a. Complete the earthquake checklist. An ESF earthquake checklist is Attachment A of its respective annex.
  - b. Use the Operational Area Concept to deploy resources into the affected area.
  - c. Alert and mobilize personnel and resources.
  - d. Determine the extent of damage related in functional area and the operational capability of all related infrastructure.

D. Federal

- 1. Upon notification from SCEMD that a damaging earthquake has occurred and South Carolina needs assistance, FEMA Region IV will activate the Regional Operational Center (ROC) in Thomasville, Georgia. The Regional Director will notify FEMA national headquarters and request the National Response Framework (NRF) be activated. Before a Presidential Declaration, selected federal agencies may provide assistance to local governments upon request by the Governor and within statutory limits.
- 2. Following a Presidential Declaration, the FEMA Region IV Regional Director will coordinate federal response activities until the appointed Federal Coordinating Officer (FCO) arrives on scene.
- 3. FEMA will activate its Incident Management Teams (IMTs) to provide a forward Federal presence to improve response to serious incidents requiring Federal assistance. The IMTs will support efforts to meet the emergent needs of State and local jurisdictions, possess the capability to provide initial situational awareness for Federal decision-makers and support the initial establishment of a unified command. FEMA may also activate the following specialized teams and resources to provide immediate assistance to the State:

- a. Urban Search and Rescue (US&R) Task Force.
- b. Mobile Emergency Response Support (MERS) Units.
- c. National Disaster Medical System (NDMS).
- d. Initial Response Resource (IRR) Packages.

#### IV. CONCEPT OF OPERATIONS

Under the strong earthquake conditions this Appendix addresses, certain variations to the statewide emergency management coordination system are required. Primarily, these changes involve the establishment of hazard-specific operational concepts for earthquake response. They are:

##### A. Activation and Notification

1. Due to the potential of light to moderate damage from earthquakes within the magnitude ranges of 4.0 to 5.9, SCEMD will activate at OPGON 4 with internal staff to assess the potential impact from the event. SCEMD will contact the impacted county(ies) to assess the situation. Upon assessment, SCEMD Director will determine if there is a need for further SEOC activation or return to normal operating conditions.
2. The activation trigger for a full-scale SEOC earthquake operation is an  $M \geq 6.0$ . Activation of the SCEOP, SEOC SOPs, and this Appendix will occur. The SEOC will be activated at Operating Condition (OPCON) 1.
3. SERT will be contacted using the most operable notification system (REACH SC, telephone, pagers, EAS, etc.) by SC Warning Point. SERT shift members will report to the SEOC within two hours or less upon confirmation of an  $M \geq 6.0$  earthquake or no system is operational due to technical difficulties, SERT will self-deploy to SEOC. The media will serve as SERT source on the confirmation of an M 6.0 or greater earthquake. ESFs will begin implementing SOPs, agency/organizational response actions accordingly, and the Earthquake Checklist.
4. If it is determined that the SEOC is damaged due to the earthquake, members will be notified by SC Warning Point to report to the Alternate Emergency Operations Center (AEOC). The AEOC location and operating procedures are found in the SEOC SOP.
5. Even though SERT members are required to report to the SEOC, it is critical that SERT members utilize SEOC shift operations procedures (if the earthquake occurs at night, then the night shift reports, and if it occurs during the day, then the day shift reports). This procedure will ensure the ability to sustain operations.

## B. Damage Assessment

It is essential for emergency response personnel to take immediate action to gather damage assessment information. This information is needed to determine the severity and extent of injuries and damages. Further, this data gathering effort should provide much of the information decision makers will need to implement and prioritize response actions for search and rescue, communications, access and control to the impacted area, debris clearance, mass care, etc.

1. If practical, SCEMD will activate the SAT to conduct ground and aerial surveys to determine the scope of the damage, casualties, and the status of key facilities as soon as possible.
2. SERT will request ESF-1 Air Branch to conduct an immediate air assessment of bridges and roads.
3. SERT Operations Group will immediately deploy ESF RRTs (noted below) to provide detailed damage assessment and human service assistance.
4. ESF RRTs will provide detailed damage reports to the SERT. ESF RRTs will conduct operations in the following functional areas:
  - a. ESF-1 Seismic Response Team (SRT): conduct structural inspection of critical bridges and recommend safe usage of roads.
  - b. ESF-2 SCEMD Operational Area Communications Team: establish point to point communications with affected counties and SEOC.
  - c. ESF-3 Post-Disaster Inspection Team: conduct structural damage inspection and evaluation of critical facilities in conjunction with local building officials.
  - d. ESF-10 Technical Assistance Team (TAT) for HAZMAT response: inspect the condition of hazardous material (HAZMAT) facilities in the damaged area.
5. Detailed information concerning the ESF RRTs' mission, organization, and deployment can be found in the respective ESF annex.

## C. Earthquake Checklist

Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and

supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A of each ESF annex for its checklist.

D. Disaster Intelligence

1. SERT representatives will report any disaster intelligence to the SERT Operations Group by whatever communication system is available.
2. SERT is the primary point for receipt and analysis of all incoming reports received from county emergency managers, Incident Commanders (IC) in Operational Areas, and state officials in the field. SERT representatives should ensure that all incoming reports received are as accurate and current as possible. Reports should include information on damage areas and locally available and committed resources in the impacted counties.
3. The information obtained from the disaster intelligence and county situation reports will be the basis for resource allocation and prioritization.
4. The aerial reconnaissance will also be used to obtain disaster intelligence information from the impacted area.

E. Response Priorities

1. Immediately after an earthquake, affected local governments and individuals by necessity, must be self-sufficient as significant aid from State and federal governments to local governments may not be available for at least 72 hours.
2. To establish an orderly and manageable system of resource allocation and response actions, SERT Executive Group will be responsible for determining the priorities of effort and allocating resources to operations. Decisions about the allocation of incoming resources and response will be made on the basis of the highest priority lifesaving needs.
3. SERT Operations Group will thoroughly assess the situation before forwarding its recommendations on response priorities and resource allocation to the SERT Executive Group.
4. Because state-level resources may rapidly be exhausted, SEOC Operations will request assistance from FEMA and other states through EMAC as required.

5. Forecasts and projections will be developed to cover future resource allocations based on estimated priorities and resource needs projections as established by the SERT Executive Group.
6. SERT members will ensure that response activities within their respective areas are coordinated between the various ESFs and SERT Operations Group, and that they are in concert with the priorities and policies established by the SERT Executive Group. Decisions with regard to the allocation of limited resources shall be coordinated and accomplished according to SERT Executive Group decisions.
7. After immediate lifesaving needs have been met, the recommended response priorities in support of lifesaving operations within the first 72 hours are:

NOTE: Many of these actions will take place simultaneously.

- a. Communication - Establishing centralized communication to coordinate rescue and response efforts and to determine extent of damage.
- b. Transportation - Assessing transportation roads and bridges to determine structural safety to transport resources and victims to medical facilities in the damaged areas.
- c. Search and Rescue Operations - Search and rescue of victims trapped in collapsed structures and administering first aid.
- d. Health and Medical – Providing medical care and assisting in transporting the seriously injured to triage or functioning medical facilities.
- e. Firefighting - Directing firefighting efforts to the most essential facilities and control of the spread of fires.
- f. Law Enforcement - Providing for the public safety of citizens.
- g. Basic Human Needs/Mass Care - Providing basic mass care (food, water, and shelter).
- h. Hazardous Materials - Inspecting and evaluating the level of HAZMAT release and the impact on the public.
- i. Preliminary Damage Assessment - Conducting preliminary damage assessment of critical facilities.

- j. Public Information - Providing accurate, consistent, and expedient emergency information to the public.

## **V. ADMINISTRATIVE AND LOGISTICS**

### **A. Administrative**

See SCEOP as updated.

### **B. Logistics**

1. In an earthquake scenario, nearly every routine resource channel, supply capability, and transportation system will be severely, if not totally, strained. Accordingly, providing resource support to the impacted area will be extremely challenging.
2. The SC Logistical Plan, Attachment A to the SC EOP will be implemented to ensure timely delivery of material and equipment into the disaster area but there may be several logistical staging areas established due to the isolation of Operational Areas.

## **VI. PLAN DEVELOPMENT AND MAINTENANCE**

- A. SCEMD Earthquake Program Manager will provide technical assistance to the appropriate officials about their responsibilities in earthquake planning.
- B. SCEMD will be responsible for coordinating an annual review and update of the Earthquake Appendix by all agencies involved. ESF agencies will make notification of necessary changes, as they occur to the Earthquake Program Coordinator for updating. For training purposes and exercises, SCEMD may implement this Appendix as necessary to evaluate the preparedness level of the SERT.
- C. This Appendix will be updated to reflect lessons learned from exercises, improved response capabilities, and additional details developed through on-going planning. Annual review and update/revision will be completed no later than September of each year.

## **VII. AUTHORITIES AND REFERENCES**

### **A. State**

1. South Carolina Emergency Operations Plan (SCEOP) as updated.
2. South Carolina Constitution.
3. South Carolina Code of Laws Ann., 25-1-420 thru 25-1-460.

4. Regulation 58-1, Local Government Preparedness Standards, SC Code of Regulations.
5. Regulation 58-101, State Government Preparedness Standards, SC Code of Regulations.
6. Governor's Executive Order 2003-12.
7. South Carolina Recovery Plan, as updated.
8. South Carolina Operational Radiological Emergency Response Plan (SCORERP), as updated.
9. South Carolina Hazard Mitigation Plan, as updated.
10. State Assessment Team (SAT) Standard Operating Procedures (SOP), as updated.
11. State of South Carolina Hazard Assessment, as updated.

**B. Federal**

1. Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, Title VI, as amended.
2. Code of Federal Regulations (CFR), Title 44, as amended.
3. National Response Framework (NRF).
4. Presidential Executive Order 12148 - Federal Emergency Management Agency.

**C. Other**

Emergency Management Assistance Compact (EMAC) Guidebook and Standard Operating Procedures (SOP)

**VIII. ATTACHMENT**

Attachment A: Earthquake Checklist  
Attachment B: Planning Scenario

Attachment C:	Operational Area Planning
Figure 1:	Map of Operational Area Transportation Entry/Re-entry Points
Table 1:	Loss Estimation for Charleston, Berkeley, Dorchester, Beaufort, and Colleton Counties
Table 2:	Critical Resources Needs Assessment
Attachment D:	Earthquake Intensity Scale
Attachment E:	Earthquake Intensity Map
Attachment F:	Earthquake Liquefaction Probability Map



**SCEMD Operations**

Date/Time complete

1.     \* \_\_\_\_\_ Announce SEOC operating condition (OPCON 1) and activate SCEOP to include this Plan.
2.     \* \_\_\_\_\_ As a follow-up procedure, request State Warning Point to contact SERT members through REACH to inform of SEOC activation.
3.     \* \_\_\_\_\_ Contact National Earthquake Information Center (NEIC), Boulder, Co., SC Seismic Network at USC; and the College of Charleston to determine the earthquake epicenter and magnitude. Telephone numbers are maintained w/SC Warning Point. Information about earthquake can also be found on USGS web page: <http://earthquake.usgs.gov/eqcenter/index.php>
4.     \* \_\_\_\_\_ Request ESFs implement all SOPs, Earthquake Checklists, and action plans for disaster response.
5.     \* \_\_\_\_\_ Activate satellite communications system to contact emergency management counties.
6.     \* \_\_\_\_\_ Request SERT ESFs obtain information in their respective areas on injuries, damages, and needs. Remind ESFs to use the Earthquake Checklist to assist in response actions.
7.     \* \_\_\_\_\_ Request county desk officers to contact emergency managers through the best available communications systems to determine most critical needs and worst-case situations with emergency managers.
8.     \* \_\_\_\_\_ Request the Governor to declare a State of Emergency and request a Presidential Declaration.
9.     \* \_\_\_\_\_ Coordinate with EQ Program manager on checklists and tasks.
10.    \* \_\_\_\_\_ Based on known event parameters, request ESF-5 to perform a HAZUS run to provide loss estimates on damages. (NOTE: HAZUS runs could possibly take four days to complete).
11.    \* \_\_\_\_\_ Review previously prepared HAZUS scenario runs (M 7.3, 6.3, and 5.3 for the state and Operational Areas that could be used to provide Presidential Declaration. (The HAZUS runs can be found in earthquake folder in the ESF-5 SEOC/OPS drive).

**Attachment A to Basic Plan**  
**Earthquake Checklist**

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12. \* \_\_\_\_\_ Notify, mobilize, and deploy Operational Area Communications Teams. Appoint either a SCEMD liaison or CIO liaison to serve as point of contact for deployed teams.
13. \* \_\_\_\_\_ Notify ESF-1 Air Branch Operations to prepare helicopters and other aerial resources for reconnaissance to include reserving one aerial asset for Governor's fly-over.
14. \* \_\_\_\_\_ Notify DOD to prepare aerial assets for deployment.
15. \* \_\_\_\_\_ Review seismic reconnaissance list and identify priority missions.
16. \* \_\_\_\_\_ Request ESF-19 Eagle Vision Satellite System to identify accessible and damaged areas.
17. \* \_\_\_\_\_ Coordinate with ESF-2 to establish radio frequency availability to communicate with county EOCs. Ensure emergency management organizations utilize assigned radio frequencies in accordance with ESF-2 guidance.
18. \* \_\_\_\_\_ Inform counties and Governor's Office that the SEOC is operational in conjunction with ongoing hazard specific notifications. Contact FEMA, GEMA, and NCEMA.
19. \* \_\_\_\_\_ Implement Operational Area Concept for response and recovery.
20. \* \_\_\_\_\_ Request ESF-1 and ESF-16 to review transportation situation, and determine if any routes into the disaster area are usable.
21. \* \_\_\_\_\_ Meet with SERT representatives to determine worst-case situations based on known information from county emergency managers and representatives in the field to include the status of available resources in the area.
22. \* \_\_\_\_\_ Prepare an Incident Accident Plan (IAP). The Plan will outline resource allocation and prioritization. Operations necessary for the performance of this function include but are not limited to:
  - Communications Teams: Determine the locations where communications teams will be dispatched to establish communications in the impacted area.
  - Transportation Assessment: Determine if routes in the expected impacted areas are usable.
  - Search and Rescue efforts: Determine the locations to begin search and rescue of victims trapped in collapsed

structures and locations to direct firefighting efforts to the most essential facilities and control the spread of fires.

- Medical Care: Determine locations to establish medical treatment triages.
- Mass Care: Determine locations to provide basic human needs (food and water).
- HAZMAT: Determine locations of HAZMAT facilities to begin inspecting and controlling the level of HAZMAT release.
- Determine locations of commercial airports for large aircraft landing.
- Determine areas to provide law enforcement for the public safety of citizens.

23. \_\_\_\_\_ Notify FEMA Region IV and request support of the following special response teams and resources:
- Rapid Needs Assessment Teams
  - Incident Assistance Teams (IMTs)
  - US&R Task Force
  - MERS Units.
  - NDMS
  - DMORT
  - IRR Packages
24. \_\_\_\_\_ Request mobilization and deployment of ESF RRTs to include equipment and supplies. Request ESF-1 to assist with transportation requests as needed.
25. \_\_\_\_\_ Request ESF-19 to provide information on military resource availability.
26. \_\_\_\_\_ Request PIO to issue public information statements.
27. \_\_\_\_\_ Alert EMAC POC for mutual aid coordination. EMAC Advance Team(s) should be requested.

## Attachment A to Basic Plan

### Earthquake Checklist

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28. \_\_\_\_\_ Request the POC of nuclear facilities, dams, and military installations to provide probable damage estimates.
29. \_\_\_\_\_ Identify locations to deploy SAT.
30. \_\_\_\_\_ Prepare ECV for deployment, and determine availability of mobile communications vehicles from unaffected counties.
31. \_\_\_\_\_ Request mobile communications vehicles from unaffected sources for deployment.
32. \_\_\_\_\_ Review Critical Resource Needs Database, coordinate with respective ESF on resource needs, and request critical resources to support earthquake disaster. See Table 2, Attachment C of this Annex.
33. \_\_\_\_\_ Identify critical resources available from ESFs.
34. \_\_\_\_\_ Request ESF 19 to mobilize Civil Support Team (CST) for possible deployment to assist ESF-10 if needed.
35. \_\_\_\_\_ Implement SC Logistical Operations Plan.
36. \_\_\_\_\_ Implement SC Catastrophic Incident Plan (if applicable).
37. \_\_\_\_\_ Request SCPRT to provide tourist occupancy rates and tourist populations in the impacted areas.
38. \_\_\_\_\_ Remind ESFs to remove critical equipment and supplies stored in damaged facilities to prevent further damage or deterioration due to aftershocks and/or weather exposure.

**I. PLANNING SCENARIO**

- A. The consequences of a large and damaging earthquake are expected to overwhelm state and local government capabilities to respond. The SERT will make every effort to save lives and protect property. However, citizens' preparedness is crucial to the preparedness and response effort because the affected population will probably be on their own for the first 72 hours following a large earthquake.
- B. The earthquake planning scenario used to develop this Appendix is based on the 2001 Comprehensive Seismic Risk and Vulnerability Study for the State of South Carolina. The scenario is similar to the 1886 Charleston earthquake that impacted the entire state. The accepted magnitude of the 1886 earthquake is M 7.3 and was intensity X on the Modified Mercalli Scale. This earthquake was the most severe earthquake to occur on the Eastern seaboard.
- C. The scenario earthquake used in this Appendix is forecast as a possible worst case. The 1886 earthquake remains the most severe earthquake to hit the eastern seaboard.
- D. A magnitude 7.3 earthquake occurring at the epicenter of the Charleston 1886 earthquake would affect the entire state with most of the destruction and damage occurring within a 100+ mile radius from the epicenter. Most buildings, including schools, hospitals, and fire stations will suffer significant damage.
- E. A Seismic Study prepared in 2000 reveal the following worst-case scenario from an earthquake similar to the M 7.3, 1886 event:
  - 1. A daytime event will cause the highest number of casualties. Of the total estimated 45,000 casualties, approximately 91% will be injuries requiring medical attention, 3% will require hospitalization, and 6% will be fatalities.
  - 2. Nearly 70,000 households or about 200,000 people would be displaced. Of these, approximately 60,000 people will seek temporary public shelter. These numbers could rise in the weeks following the earthquake as weakened structures continue to fail.
  - 3. Total economic losses from damage to buildings, direct business interruptions losses, and damage to transportation and utility systems would exceed \$20 billion.
  - 4. Over 400 schools (K-12) will experience at least moderate damage.
  - 5. Approximately 100 fire stations will experience at least moderate damage.

6. Approximately 9 million tons of debris will be generated.
7. Of the 108 hospitals statewide, 20 will experience at least moderate damage greater than 50% with most of the damaged hospitals in the low-country.
8. Approximately 60 fires will be ignited.
9. Approximately 600 bridges are expected to suffer structural damage, rendering many of them unusable.
10. A significant portion of the Berkeley, Charleston and Dorchester area is susceptible to liquefaction. However, ground failure effects contribute about 5% or less to losses.
11. Electric power facilities will suffer damage and about 670,000 households will be without power day one following the earthquake.
12. Day one following the event, approximately 160,000 households will be deprived of water. It could take weeks, possibly months, to fully restore the water systems.
13. Approximately 60% of the displaced households will have pets requiring medical care and sheltering. In addition, a large number of horses and livestock will be affected, both by injury, and by food/water deprivation.
14. The affected counties can expect to have animal carcasses for disposal and follow-up care for the remaining live animals.

**1. OPERATIONAL AREA**

- A. SCEMD will utilize the Operational Area Concept for response and recovery. Operational Areas allow for deployment of response assets to areas that will be isolated as a result of severe transportation infrastructure damage. Most operational areas will initially only be accessible by air or sea. For detailed information on the Operational Area Concept refer to Annex 4 in the Catastrophic Plan.
- B. In the Operational Areas the affected infrastructure from a strong earthquake will include: transportation arteries (interstates, State highways, rail lines, and airports); communications, (telephones lines and stations, and broadcast media); public works and engineering outlets (water treatment, sewer, and waste water facilities); firefighting resources (hydrants, tanks, and refill locations); shelters; health and medical facilities (hospitals, EMS stations, healthcare facilities, and cemeteries); HAZMAT sites (above-ground and underground storage units, pipelines, and landfills); energy providers (electric facilities, distribution lines, and generating stations); law enforcement facilities; animal care facilities (zoos, poultry farms, and family pets--also, an estimated 60% of residents located in the State have pets, thus requiring some form of sheltering or assistance); special needs requirements (schools, day care, prisons, public recreational areas, and transient populations); and governments (local, State, and federal).
- D. There are a total of 30 operational areas for Charleston, Berkeley, Dorchester, Beaufort, and Colleton counties. The Operational Areas are composed of one or more census tracts to enable SCEMD to conduct earthquake loss estimation modeling and baseline disaster needs assessments. An earthquake similar to the Charleston August 31, 1886 event will significantly impact the State's infrastructure. In order to determine the exact effects an M 7.3 could have on infrastructure, a worst-case loss estimation table was prepared for Berkeley, Charleston, Dorchester, Beaufort, and Colleton operational areas to provide emergency responders site-specific information. See Table 1 of this Attachment for the loss estimation of the above-mentioned counties.
- E. As anticipated in an earthquake, there may be an initial shortage of available critical resources. As a result, daily IAPs will be required to address prioritizing the distribution of scarce response resources as categorized by Operational Area. Resource needs anticipated immediately after an earthquake includes food, bottled water, cots, blankets, fuel, and heavy equipment. See Table 2, Critical Resource Needs Assessment of this Attachment.
- F. LSA will be set up outside the disaster area. The LSA may not be operational until 72 hours after the earthquake. Based on the magnitude and area of damage, there could be more than one LSA established.

## **Attachment C to Basic Plan**

### **Operational Area Planning**

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- G. Each operational area may be required to work independently until routes are surveyed for damage and cleared of debris.
- H. Traffic Management will include diversion routes to move traffic around blocked priority roadways and access routes to move into and within Operational Areas. Although SCDOT has pre-identified primary and alternate inspection routes for earthquake prone counties, these routes are situation dependent. After the event and in coordination with the appropriate county officials, ESF-1 will select the proper routing to and from operational areas based on known route conditions.
- I. The Operational Area Transportation Entry/Re-entry Points are pre-identified locations. These entry/re-entry points are where resources (equipment, supplies, personnel, etc.) will be received and later deployed within the operational areas. The transportation entry/re-entry points could be roadways, waterways, airports, and heliports within the operational area. These points of entry are situation dependent and could change due to the severity of the earthquake. See Figure 1, Map of Transportation Entry/Re-entry Points and for more information on transportation entry points and routes, see Annex 1, Transportation Services, of this Appendix.
- J. Transportation entry/re-entry points are identified based on the premise that initial entry into the most severely impacted Operational Areas will only be by air and sea or indirect land routes until primary entry routes are cleared of debris. To facilitate operations under such conditions, counties are encouraged to identify and develop protocols for helicopter landing/pick up zones and potential drop zones to receive initial material and equipment. Counties also need to identify areas and develop protocols for large-scale helicopter / fixed wing airhead operations. Air space coordination and requirements will be coordinated through ESF-1, Transportation (Air Branch).
- K. The communication operations for an earthquake will be based on a prioritized and time-phased communications plan to support multiple communication locations in the operations. Due to the uniqueness of an earthquake response, a specific deployment response is prepared. For more information on the earthquake communications response, see Annex 2, Communications, Attachment B of this Appendix.

## **II. LOSS ESTIMATION**

- A. FEMA HAZUS was used to develop the loss estimation. The primary purpose of HAZUS is to provide a methodology and software application to develop loss estimations from Statewide to census scale. Due to uncertainties inherent in any loss estimation technique, there may be differences between the modeled results contained in Table 1 and the actual social and economic losses following a specific earthquake. A specific limitation to HAZUS is the tourist population,



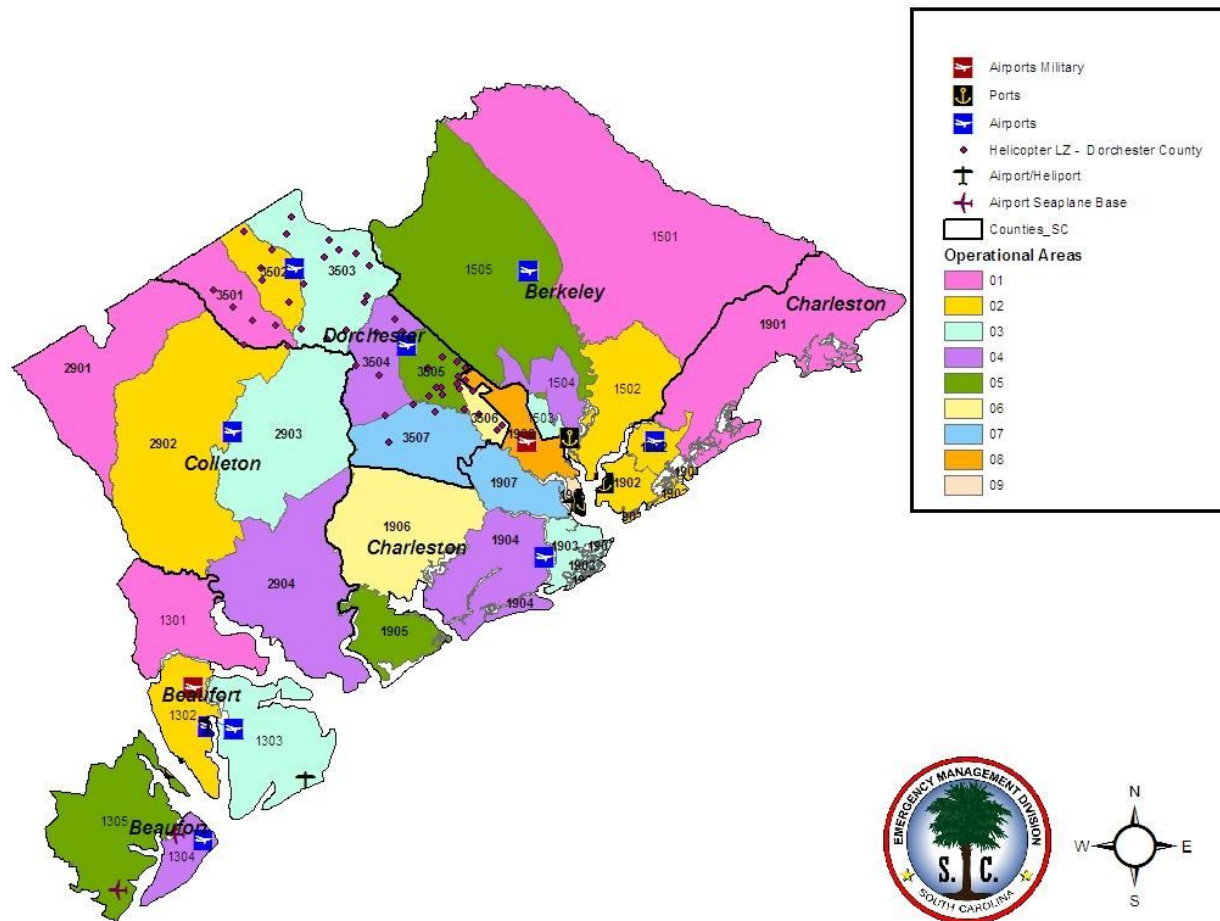
which is not clearly accounted for in the loss estimates. If a strong earthquake were to occur in the summer, the losses could be significantly higher. Although no loss estimation will prove completely accurate, it can provide potential damage patterns, and the conceivable damage conclusions will provide guidelines for emergency response planning. The loss estimation contained in this section is based on the M 7.3 event which is the worst-case scenario for South Carolina.

- B. Table 1 includes loss estimates from operational areas in Charleston, Berkeley, Dorchester, Beaufort, and Colleton counties. As more HAZUS data becomes available, additional counties will be included in the loss estimation.
- C. Table 2 is the Critical Needs Assessment. The Critical Needs Assessment lists the estimates on which to base the State's resource requirements following a strong earthquake. The projected requirements were based on the loss estimation tables for Berkeley, Charleston, Dorchester, Beaufort, and Colleton counties.

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**Figure 1 - OPERATIONAL AREA TRANSPORTATION ENTRY / RE-ENTRY POINTS**

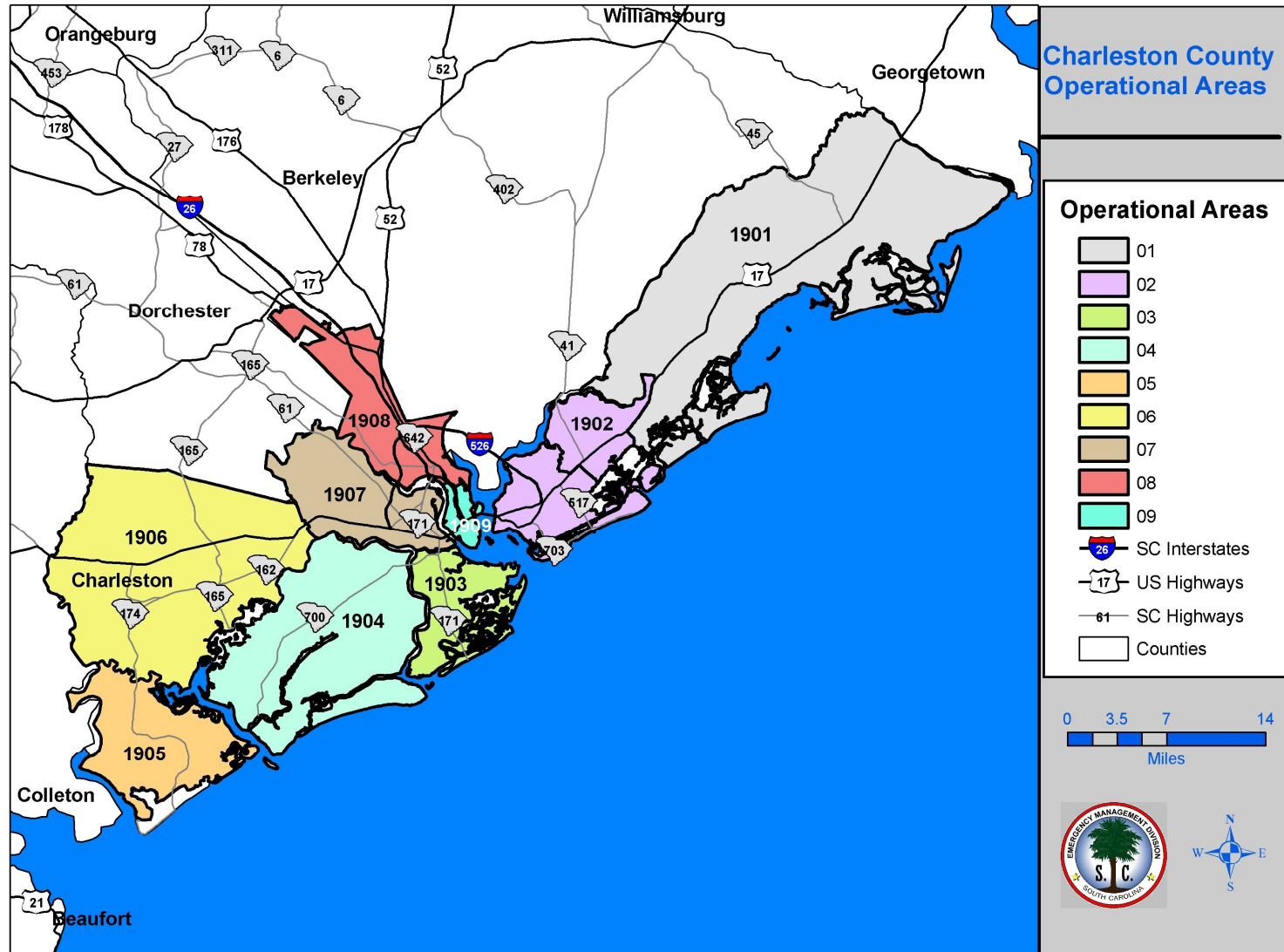
The Operational Area Transportation Entry/Re-entry Points are pre-identified locations. These entry points are the locations where resources (equipment, supplies, personnel, etc.) will be received and later deployed within the operational areas. The transportation entry/re-entry points could be roadways, waterways, airports, and heliports within the operational area. These points of entry are situation dependent and could change due to the severity of the earthquake. For a list of transportation entry/re-entry points and routes, see Annex 1, Attachment C of this Plan.



**OPERATIONAL AREA MAPS and TABLES**

- A. The maps in the following section depict the Operational Areas in Berkeley, Charleston, Dorchester, Beaufort, and Colleton counties.
- B. The Tables following the maps depict the worst-case loss estimates requirements developed for each Operational Area. HAZUS-MH was used to develop the loss estimates and formed the basis for the human needs requirements.
- C. The majority of the data below was developed using the 2008 projected U.S. Census estimates. Essential facility loss estimates and hazardous material sites are based on 2000 HAZUS data and are so marked.
- D. Information contained in the Tables should be used to develop initial response / support plans which will form the planning basis for actual, real-time response/support planning.

# CHARLESTON COUNTY



## OPERATIONAL AREA DESCRIPTIONS

COUNTY: CHARLESTON COUNTY			
COUNTY CODE: Chas			
CountyID	FIPS	Location	Description/Boundary
Chas-1	1901	McClellanville	North boundary is county line, south boundary is Steed Creek Rd and Doar Rd Divide at Bulls Bay. Includes towns of McClellanville and Awendaw.
Chas-2	1902	Mt. Pleasant/Awendaw	North boundary divides at Bull Bay, west boundary is the Wando River and south boundary is the Cooper River. Includes the towns of Mt. Pleasant, Awendaw, Isle of Palms and Sullivans Island.
Chas-3	1903	James Island / Folly Beach	North boundary is Wappoo Creek, east and southern boundary is the Atlantic, and the west boundary is the Stono River. Includes Folly Beach area.
Chas-4	1904	Johns Island	North and east boundary is the Stono River, south boundary is the Atlantic, and west boundary is the North Edisto River.
Chas-5	1905	Edisto Island	Includes the entire island as bounded by the Edisto and North Edisto Rivers.
Chas-6	1906	Hollywood / Ravenel	North boundary is county line, south boundary is Dawho River, west boundary is the Edisto River, and east boundary is Wadlaw River. Includes towns of Hollywood, Ravenel, and Meggett.
Chas-7	1907	West Ashley / St. Andrews	North boundary is county line and is between Stono and Ashley Rivers. South boundary is the Wappoo Creek. No cities / towns located in this Operational Area.
Chas-8	1908	Peninsula North	East boundary is the Cooper River; west boundary is the Ashley River. Includes the City of Charleston, North area, Lincolnville and N. Charleston.
Chas-9	1909	Peninsula South	Pittsburgh Ave and Meeting Street/King St. Extension north up King St. Extension to where it intersects with I-26 West to the Ashley River between Rhodia and Osprey Place Apartments. Boundary follows the two cities boundaries.

**Attachment C to Basic Plan  
Operational Area Planning  
Table 1**

Charleston County Category	Charleston Description	Operational Area 1901 (1%)	Operational Area 1902 (20%)	Operational Area 1903 (11%)	Operational Area 1904 (5%)	Operational Area 1905 (.5%)	Operational Area 1906 (4%)	Operational Area 1907 (19.5%)	Operational Area 1908 (27.49%)	Operational Area 1909 (11.51%)	County Total
Demographics	Population	3,399	67,977	37,387	16,994	1,699	13,595	66,277	93,434	39,121	339,883
	Total Households	1,351	27,033	14,868	6,758	675	5,406	26,357	16,259	34,422	133,129
Additional Demographic Information	Age 65 or older	643	7,435	4,287	1,926	196	1,608	7,744	9,166	6,111	39,116
	Non English Speaking HH	352	4,122	2,345	1,056	107	880	4,235	5,014	3,343	21,454
	Homeless	55	644	366	165	17	137	662	784	522	3,352
	HH w/o Transportation	103	1,204	686	308	31	257	1,237	1,465	976	6,267
	Disabled	1,221	14,287	8,134	3,662	372	3,051	14,691	17,392	11,595	74,405
Initial Shelter	Displaced Households	9	2,951	2,504	1,339	18	988	8,353	11,024	4,503	31,689
	Total Persons per H/H (2.4 people per H/H) displaced	22	7,082	6,009	3,213	44	2,371	20,047	26,458	10,807	76,053
	Remaining HH Sheltered In Place	1,342	24,082	12,364	5,419	657	4,418	18,004	5,235	29,919	101,440
	Total Persons Sheltered-In Place	3,221	57,797	29,674	13,006	1,576	10,604	43,209	12,564	71,806	243,457
	# of Persons Seeking Short-term ARC shelter	2	626	609	352	5	299	2,104	3,545	1,448	8,990
Animal Response	# of pets needing shelter	1	163	158	92	1	78	547	922	376	2,338

**NOTE:** Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

# Attachment C to Basic Plan

## Operational Area Planning

Table 1

Charleston County Needs Assessment	Description	Operational Area 1901 (1%)	Operational Area 1902 (20%)	Operational Area 1903 (11%)	Operational Area 1904 (5%)	Operational Area 1905 (.5%)	Operational Area 1906 (4%)	Operational Area 1907 (19.5%)	Operational Area 1908 (27.49%)	Operational Area 1909 (11.51%)	County Total
Drinking Water: 3 liter bottle per person per day	ARC Sheltered	3,399	67,977	37,387	16,994	1,699	13,595	66,277	93,434	39,121	339,883
	Total Persons Sheltered in Place	9,662	173,390	89,023	39,018	4,729	31,812	129,628	37,692	215,417	730,371
	Emergency Workers (10% of displaced persons)	7	2,125	1,803	964	13	711	6,014	7,937	3,242	22,816
	Total Liters of water per day	13,067	243,492	128,213	56,976	6,441	46,118	201,920	139,063	257,779	1,093,069
Meals (2 meals per day)	ARC Sheltered	4	1,253	1,218	704	10	597	4,208	7,090	2,896	17,981
	Total Persons Sheltered in Place	6,441	115,594	59,349	26,012	3,153	21,208	86,419	25,128	143,611	486,914
	Emergency Workers (10% of displaced persons)	4	1,416	1,202	643	9	474	4,009	5,292	2,161	15,211
	Total Meals Per Day	6,450	118,263	61,769	27,359	3,171	22,279	94,636	37,510	148,669	520,105
Ice = 8 lb. Bag daily (1 bag per person)	ARC Sheltered	2	626	609	352	5	299	2,104	3,545	1,448	8,990
	Total Persons Sheltered in Place	3,221	57,797	29,674	13,006	1,576	10,604	43,209	12,564	71,806	243,457
	Emergency Workers (10% of displaced persons)	2	708	601	318	4	237	2,005	2,646	1,081	7,602
	Total Bags of Ice per Day	3,225	59,131	30,884	13,676	1,586	11,139	47,318	18,755	74,334	260,049
Generators	1 per 385 ARC sheltered	1	1	1	1	1	1	5	9	4	25
Portable Toilets	1 per 15 ARC sheltered	1	42	41	23	1	20	140	236	97	601

**NOTE:** Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.



**Attachment C to Basic Plan  
Operational Area Planning  
Table 1**

Charleston County Category	Description	Operational Area (1901)	Operational Area (1902)	Operational Area (1903)	Operational Area (1904)	Operational Area (1905)	Operational Area (1906)	Operational Area (1907)	Operational Area (1908)	Operational Area (1909)	County Total
<b>**Essential Facilities</b>	<b>#Police Stations Total</b>	0	4	1	0	2	1	0	1	3	12
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	4	1	0	2	1	0	1	3	12
	<b>#Schools Total</b>	3	15	6	10	2	9	14	35	21	115
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	1	12	6	10	2	9	13	33	21	107
	<b># Hospitals Total</b>	0	1	0	0	0	0	1	3	7	12
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	1	0	0	0	0	1	3	7	12
	<b># Fire Stations Total</b>	5	9	7	6	1	4	8	12	6	58
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	3	9	7	6	1	4	8	12	6	56
<b>**Utilities</b>	<b># Potable Water Pipeline Leaks</b>	0	5	5	2	138	4	16	31	0	201
	<b># Potable Water Pipeline Breaks</b>	0	1	1	1	34	1	4	8	0	50
	<b># Electrical Power Facilities</b>	0	1	0	0	0	0	24	6	0	31
	<b># Electrical Power Facilities Damaged</b>	0	0	0	0	0	0	0	0	0	0
	<b># Waste Treatment Plants</b>	2	116	65	8	0	8	102	36	7	344
	<b># Waste Treatment Plants Damaged</b>	0	0	0	0	0	0	0	0	0	0
	<b># Communication Facilities</b>	1	6	0	0	0	0	9	2	6	24
	<b># Communication Facilities Damaged</b>	0	0	0	0	0	0	9	2	6	17

**NOTE:** Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

# Attachment C to Basic Plan

## Operational Area Planning

Table 1

Charleston County Category	Description	Operational Area (1901)	Operational Area (1902)	Operational Area (1903)	Operational Area (1904)	Operational Area (1905)	Operational Area (1906)	Operational Area (1907)	Operational Area (1908)	Operational Area (1909)	County Total
**Transportation	# Bridges	18	35	9	33	3	32	37	122	43	332
	# Bridges Damaged	18	35	6	26	0	0	16	70	35	206
	# Airports	0	1	0	1	0	0	0	1	0	3
	# Airports Damaged	0	0	0	0	0	0	0	1	0	1
	# Rail Facilities	0	0	0	0	0	0	0	2	0	2
	# Rail Facilities Damaged	0	0	0	0	0	0	0	0	0	0
**Inventory of Hazardous Materials Sites		17	145	74	46	8	57	194	806	329	1,676
**Debris	Total Weight (in tons)	38,716	1,446,280	623,527	393,019	24,622	195,089	1,545,142	4,444,785	1,432,202	10,143,382
**Fire	# of Potential Fires	0	5	3	2	0	1	4	4	0	19
***Casualties	Day Event										
	2 p.m.										
	-Minor	5	856	407	299	14	256	1,495	3,529	1,512	8,374
	-Major	1	282	138	103	5	89	523	1,245	533	2,919
	-Deaths	0	70	34	25	1	22	133	323	138	608
	Night Event										
	2 a.m.										
	-Minor	11	574	438	326	12	336	1,439	2,379	1,020	6,536
	-Major	2	164	129	95	3	93	444	751	322	2,005
	-Deaths	0	31	31	16	0	13	87	154	66	398
	Commuting Event										
	5 p.m.										
	-Minor	8	699	408	294	11	249	1,424	2,867	1,229	7,188
	-Major	2	272	145	224	4	92	562	1,178	505	2,984
	-Deaths	0	57	32	25	1	19	122	263	113	631

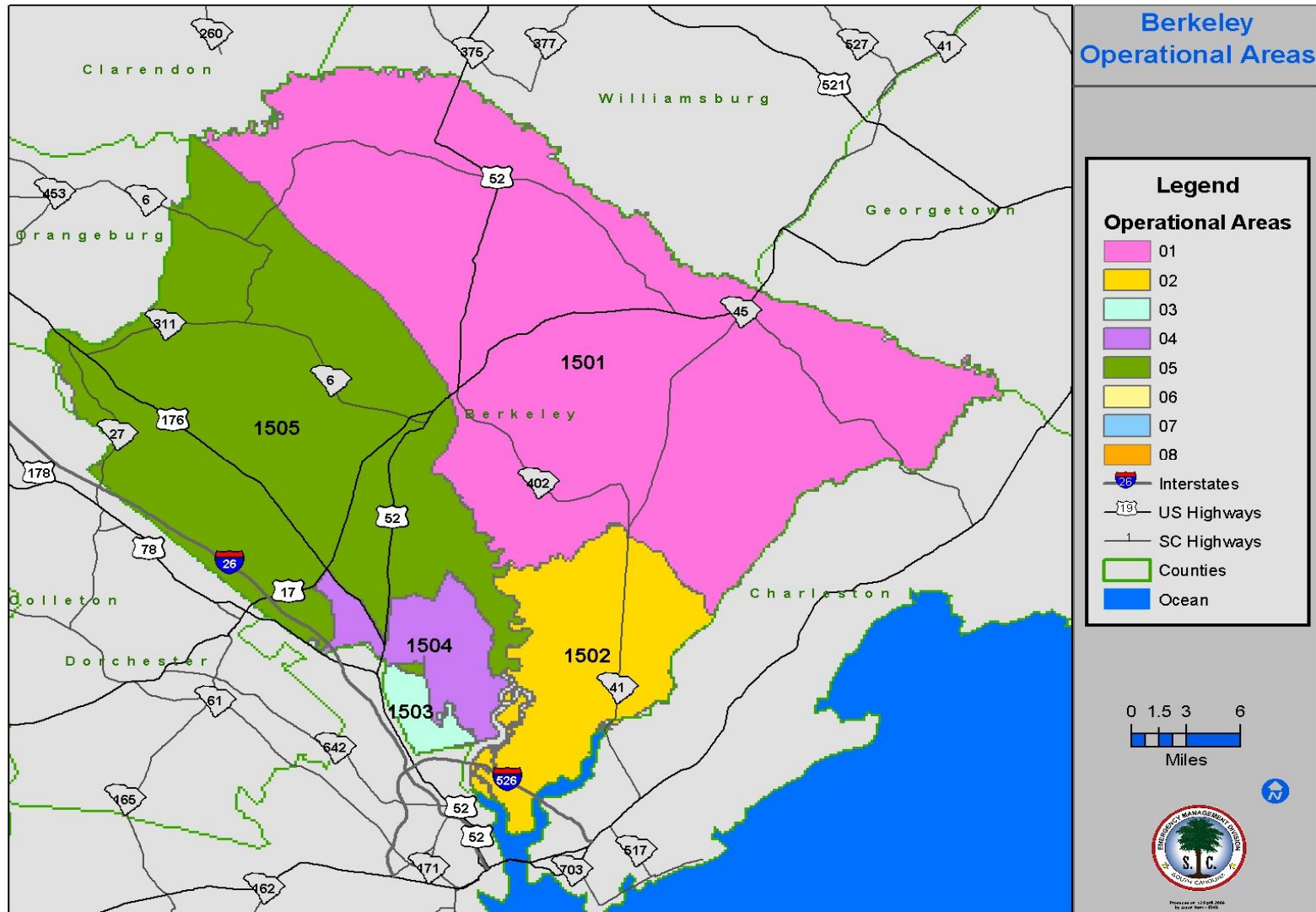
NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan  
Operational Area Planning  
Table 1**

Charleston County Category	Description	Operational Area (1901)	Operational Area (1902)	Operational Area (1903)	Operational Area (1904)	Operational Area (1905)	Operational Area (1906)	Operational Area (1907)	Operational Area (1908)	Operational Area (1909)	County Total
***Power Outage	Total # of Households	1,351	27,033	14,868	6,758	675	5,406	26,357	16,259	34,422	133,129
	Day 1	0	726	6,072	5,077	549	4,382	0	1,599	0	18,404
	Day 30	0	7	178	343	22	445	0	30	0	1,024
***Water Shortage	Day 1	0	0	0	0	93	0	0	0	0	93
	Day 30	0	0	0	0	0	0	0	0	0	0
***Residential Damage	Total # of Households	1,351	27,033	14,868	6,758	675	5,406	26,357	16,259	34,422	133,129
	Moderately damaged	426	5,903	3,226	2,463	259	1,342	5,343	5,996	2,569	27,526
	Severely damaged	149	1,713	963	1,156	158	1,088	1,934	3,224	1,381	11,767
	Completely Destroyed	25	2,477	1,891	2,564	67	3,566	5,348	7,941	3,403	27,282

**NOTE:** Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

BERKELEY COUNTY



**OPERATIONAL AREA DESCRIPTIONS**

<b>COUNTY: BERKELEY</b>			
<b>County/ID</b>	<b>FIPS Code</b>	<b>Location</b>	<b>Boundary</b>
<b>Berk-01</b>	1501	Berkeley Northeast	North and east boundaries are bounded by county line and east side of the Diversion Canal. South Boundary stops before Daniel Island incorporated areas. West boundary is West Branch tributary to the Cooper River. Includes the towns of St. Stephen, Bonneau, and Jamestown.
<b>Berk-02</b>	1502	Berkeley South	Daniels Island and Incorporated areas.
<b>Berk-03</b>	1503	Hanahan	Town of Hanahan and incorporated areas.
<b>Berk-04</b>	1504	Goose Creek	City of Goose Creek, US Naval Weapon Station, and incorporated areas.
<b>Berk-05</b>	1505	Berkeley Northwest	East boundary is bounded by the west side of the Diversion Canal and Lake Marion. North and west boundaries are bounded by county line, south boundary ends before City of Goose Creek incorporated areas. Includes the town of Moncks Corner.

**Attachment C to Basic Plan**  
**Operational Area Loss Planning**  
**Table 1**

Berkeley County Category	Description	Operational Area 1501 (14%)	Operational Area 1502 (3.25%)	Operational Area 1503 (14.77%)	Operational Area 1504 (26.76%)	Operational Area 1505 (41.22%)	County Total
Demographics	Population	21,788	5,058	22,987	41,647	64,152	155,632
	Total Households	7,611	1,767	8,030	14,548	22,409	54,365
	Age 65 or older	1,956	454	2,064	3,739	5,759	13,972
Additional Demographic Information	Non English Speaking HH	1,282	298	1,353	2,451	3,775	9,159
	Homeless	217	50	229	415	640	1,551
	HH w/o Transportation	406	0	429	777	1,196	2,808
	Disabled	4,825	1,120	5,090	9,222	14,206	34,463
Initial Shelter	Displaced Households	512	32	2,643	3,740	5,710	12,636
	Total Persons (2.75 people per H/H) displaced	1,408	87	7,268	10,284	15,701	34,748
	Remaining HH Sheltered-In Place	7,099	1,735	5,387	10,808	16,700	41,729
	Total Persons Sheltered-In Place	19,523	4,772	14,813	29,723	45,924	114,756
	# of Persons Seeking Short-term ARC shelter	148	8	635	868	1,417	3,075
Animal Response	# of pets needing shelter	39	2	165	226	368	800

**NOTE:** Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Berkeley County Needs Assessment	Description	Operational Area 1501 (14%)	Operational Area 1502 (3.25%)	Operational Area 1503 (14.77%)	Operational Area 1504 (26.76%)	Operational Area 1505 (41.22%)	County Total
Drinking Water: 3 liter bottle per person per day	ARC Sheltered	444	23	1,905	2,604	4,250	9,226
	Total Persons Sheltered in Place	58,569	14,316	44,440	89,170	137,772	344,267
	Emergency Workers (10% of displaced persons)	422	26	2,180	3,085	4,710	10,424
	Total Liters of water per day	59,436	14,365	48,525	94,859	146,733	363,917
Meals (2 meals per day)	ARC Sheltered	296	15	1,270	1,736	2,834	6,151
	Total Persons Sheltered in Place	39,046	9,544	29,627	59,446	91,848	229,511
	Emergency Workers (10% of displaced persons)	282	17	1,454	2,057	3,140	6,950
	Total Meals Per Day	39,624	9,577	32,350	63,239	97,822	242,612
Ice = 8 lb. Bag daily (1 bag per person)	ARC Sheltered	148	8	635	868	1,417	3,075
	Total Persons Sheltered in Place	19,523	4,772	14,813	29,723	45,924	114,756
	Emergency Workers (10% of displaced persons)	141	9	727	1,028	1,570	3,475
	Total Bags of Ice per Day	19,812	4,788	16,175	31,620	48,911	121,306
Generators	1 per 385 ARC sheltered	1	1	2	2	4	10
Portable Toilets	1 per 15 ARC sheltered	10	1	42	58	94	206

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Berkeley County Category	Description	Operational Area (1501)	Operational Area (1502)	Operational Area (1503)	Operational Area (1504)	Operational Area (1505)	County Total
<b>**Essential Facilities</b>	<b>#Police Stations Total</b>	0	0	1	0	2	3
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	0	1	0	2	3
	<b>#Schools Total</b>	13	4	6	24	24	71
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	13	4	6	24	24	71
	<b># Hospitals Total</b>	0	0	0	0	0	0
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	0	0	0	0	0
	<b># Fire Stations Total</b>	13	4	2	3	13	35
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	13	4	2	3	13	35
<b>**Utilities</b>	<b># Potable Water Pipeline Leaks</b>	0	81	2	30	16	129
	<b># Potable Water Pipeline Breaks</b>	0	20	1	97	50	168
	<b># Electrical Power Facilities</b>	3	0	2	1	2	8
	<b># Electrical Power Facilities Damaged</b>	0	0	0	0	0	0
	<b># Waste Treatment Plants</b>	8	0	28	31	62	129
	<b># Waste Treatment Plants Damaged</b>	0	0	0	31	62	93
	<b># Communication Facilities</b>	1	0	0	1	1	3
	<b># Communication Facilities Damaged</b>	0	0	0	1	1	2

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.



**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Berkeley County Category	Description	Operational Area (1501)	Operational Area (1502)	Operational Area (1503)	Operational Area (1504)	Operational Area (1505)	County Total
<b>**Transportation</b>	# Bridges	58	30	6	6	83	183
	# Bridges Damaged	31	19	5	6	75	136
	# Airports	0	0	0	0	1	1
	# Airports Damaged	0	0	0	0	1	1
	# Rail Facilities	0	0	0	0	0	0
	# Rail Facilities Damaged	0	0	0	0	0	0
<b>**Inventory of Hazardous Materials Sites</b>		98	33	61	76	255	523
<b>**Debris</b>	Total Weight (in tons)	71,600	37,768	228,128	514,769	771,699	1,623,964
<b>**Fire</b>	# of Potential Fires	2	0	2	4	7	15
<b>***Casualties</b>	<b>Day Event</b>						
	2 p.m.						
	-Minor	102	72	281	626	1,240	2,322
	-Major	30	23	99	221	435	808
	-Deaths	7	5	24	54	107	197
	<b>Night Event</b>						
	2 a.m.						
	-Minor	159	28	474	1,061	1,459	3,181
	-Major	39	8	145	327	423	941
	-Deaths	5	1	28	63	69	167
	<b>Commuting Event</b>						
	5 p.m.						
	-Minor	101	64	378	805	1,333	2,681
	-Major	33	47	179	309	744	1,311
	-Deaths	5	8	35	65	131	244

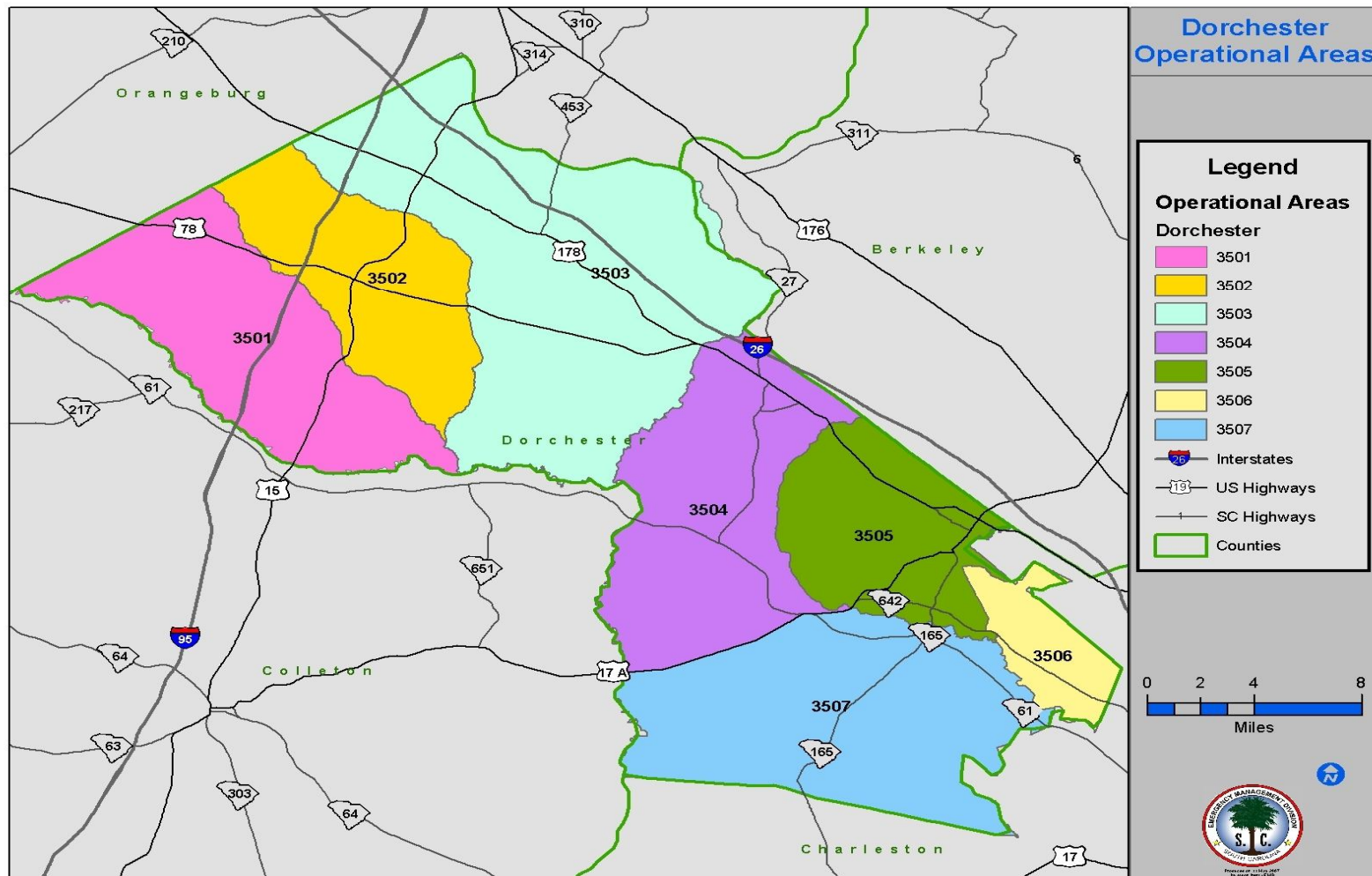
NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Berkeley County Category	Description	Operational Area (1501)	Operational Area (1502)	Operational Area (1503)	Operational Area (1504)	Operational Area (1505)	County Total
***Power Outage	Total # of Households	7,611	1,767	8,030	14,548	22,409	54,365
	Day 1	0	0	1,789	11,242	18,273	31,304
	Day 30	0	0	47	1,139	2,093	3,279
***Water Shortage	Day 1	0	0	0	8,575	9,877	18,452
	Day 30	0	0	0	0	0	0
***Residential Damage	Total # of Households	7,611	1,767	8,030	14,548	22,409	54,365
	Moderately damaged	2,766	482	1,617	3,997	7,252	16,114
	Severely damaged	1,416	267	772	1,268	3,394	7,117
	Completely Destroyed	773	110	1,652	4,373	7,137	14,046

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

## DORCHESTER COUNTY



**OPERATIONAL AREA DESCRIPTIONS**

<b>COUNTY NAME: DORCHESTER</b>			
<b>COUNTY CODE: Dorc</b>			
<b>County/ID</b>	<b>FIP</b>	<b>Location</b>	<b>Boundary</b>
<b>Dorc-1</b>	350	Grover	North boundary separated by county line. West boundary is Edisto River. The East boundary is the Polk Swamp Tributary. Includes the Grover community.
<b>Dorc-2</b>	350	St. George	North boundary separated by county line. West boundary is the Polk Swamp Tributary. East and South boundary areas are the Indian Field Swamp tributary. Includes the town of St. George.
<b>Dorc-3</b>	350	Harleyville/ Reevesville	North and East boundaries are separated by county line. West boundary is the Indian Field Swamp tributary. The south boundary is the Four Hole Swamp tributary. Includes the towns of Harleyville and Reevesville.
<b>Dorc-4</b>	350	Givhans	Bounded by Four Hole Swamp to the north, south by US 17A, east by the Great Cypress Swamp, and west by county line. Includes the towns of Givhans and Ridgeville.
<b>Dorc-5</b>	350	Summerville/ Ladson	Bounded by the Great Cypress Swamp to the north, Ashley River to the west, county line to the east, and south boundary is SR 230. Includes the town of Summerville and communities of Knightsville and Jedbarg.
<b>Dorc-6</b>	350	Dorchester Road Corridor	West boundary is Ashley River, east and south boundaries are county line, and north boundary is SR 230. Includes the Dorchester State Park, parts of the Ladson community, and the western portion of the City of North Charleston.
<b>Dorc-7</b>	350	Clubhouse/ Deleamar	West, east, and south boundaries separated by county line. North boundary is US 17A and the Great Cypress Swamp tributary.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Dorchester County Category	Description	Operational Area 3501 (2.6%)	Operational Area 3502 (5.3%)	Operational Area 3503 (5.7%)	Operational Area 3504 (5.8%)	Operational Area 3505 (49.3%)	Operational Area 3506 (28.7%)	Operational Area 3507 (2.6%)	County Total
Demographics	Population	3,339	6,807	7,321	7,450	63,321	36,862	3,339	128,440
	Total Households	1,015	2,071	2,226	2,265	19,255	11,209	1,015	39,055
	Age 65 or older	304	607	660	676	5,702	3,317	302	11,568
Additional Demographic Information	Non English Speaking HH	60	121	131	134	1,134	660	60	2,300
	Homeless	32	65	70	72	607	353	32	1,231
	HH w/o Transportation	60	121	131	134	1,134	660	60	2,300
	Disabled	717	1,435	1,560	1,596	13,467	7,834	714	27,323
Initial Shelter	Displaced Households	88	182	194	141	7,974	4,015	126	12,720
	Total Persons (2.72 people per H/H) displaced	240	495	528	384	21,690	10,920	342	34,600
	Remaining HH Sheltered-In Place	927	1,889	2,031	2,124	11,280	7,194	889	26,334
	Total Persons Sheltered-In Place	2,521	5,138	5,525	5,777	30,683	19,568	2,419	71,630
	# of Persons Seeking Short-term ARC shelter	25	53	57	39	1,915	883	30	3,003
Animal Response	# of pets needing shelter	6	14	15	10	498	230	8	781

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Dorchester County Needs Assessment	Description	Operational Area 3501 (2.6%)	Operational Area 3502 (5.3%)	Operational Area 3503 (5.7%)	Operational Area 3504 (5.8%)	Operational Area 3505 (49.3%)	Operational Area 3506 (28.7%)	Operational Area 3507 (2.6%)	County Total
Drinking Water: 3 liters per person per day	ARC Sheltered	75	159	171	118	5,745	2,649	90	9,008
	Total Persons Sheltered in Place	7,563	15,413	16,575	17,330	92,048	58,703	7,257	214,889
	Emergency Workers (10% of displaced persons)	72	148	159	115	6,507	3,276	103	10,380
	Total Liters of water per day	7,709	15,721	16,905	17,563	104,300	64,629	7,450	234,278
Meals (2 meals per day)	ARC Sheltered	50	106	114	79	3,830	1,766	60	6,005
	Total Persons Sheltered in Place	5,042	10,276	11,050	11,553	61,366	39,136	4,838	143,260
	Emergency Workers (10% of displaced persons)	48	99	106	77	4,338	2,184	68	6,920
	Total Meals Per Day	5,140	10,481	11,270	11,709	69,533	43,086	4,967	156,185
Ice = 8 lb. Bag daily (1 bag per person)	ARC Sheltered	25	53	57	39	1,915	883	30	3,003
	Total Persons Sheltered in Place	2,521	5,138	5,525	5,777	30,683	19,568	2,419	71,630
	Emergency Workers (10% of displaced persons)	24	49	53	38	2,169	1,092	34	3,460
	Total Bags of Ice per Day	2,570	5,240	5,635	5,854	34,767	21,543	2,483	78,093
Generators	1 per 385 ARC sheltered	1	1	1	1	4	3	1	12
Portable Toilets	1 per 15 ARC sheltered	2	4	4	3	128	59	2	201

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan  
Operational Area Planning  
Table 1**

Dorchester County Category	Description	Operational Area (3501)	Operational Area (3502)	Operational Area (3503)	Operational Area (3504)	Operational Area (3505)	Operational Area (3506)	Operational Area (3507)	County Total
<b>**Essential Facilities</b>	<b>#Police Stations Total</b>	0	1	1	1	1	0	0	4
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	1	1	1	1	0	0	4
	<b>#Schools Total</b>	0	3	3	2	12	5	1	26
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	3	3	2	12	5	1	26
	<b># Hospitals Total</b>	0	0	0	1	0	1	0	2
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	0	0	1	0	1	0	2
	<b># Fire Stations Total</b>	4	1	3	3	3	2	1	17
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	4	1	3	3	3	2	1	17
<b>**Utilities</b>	<b># Potable Water Pipeline Leaks</b>	0	0	0	0	93	6	0	99
	<b># Potable Water Pipeline Breaks</b>	0	0	0	0	268	1	0	269
	<b># Electrical Power Facilities</b>	0	0	0	0	1	0	0	1
	<b># Electrical Power Facilities Damaged</b>	0	0	0	0	0	0	0	0
	<b># Waste Treatment Plants</b>			17	2	60	37	5	121
		(combination of 3501, 3502, 3503)							
	<b># Waste Treatment Plants Damaged</b>	0	0	0	0	60	0	0	60
	<b># Communication Facilities</b>	0	0	0	0	2	0	0	2
	<b># Communication Facilities Damaged</b>	0	0	0	0	2	0	0	2

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Dorchester County Category	Description	Operational Area (3501)	Operational Area (3502)	Operational Area (3503)	Operational Area (3504)	Operational Area (3505)	Operational Area (3506)	Operational Area (3507)	County Total
**Transportation	# Bridges	138 (combination of 3501, 3502, 3503)			29	28	3	14	212
	# Bridges Damaged	44 (combination of 3501, 3502, 3503)			20	28	2	9	103
	# Airports	1			0	1	0	0	2
	# Airports Damaged	0 (combination of 3501, 3502, 3503)			0	1	0	0	1
	# Rail Facilities	0	0	0	0	0	0	0	0
	# Rail Facilities Damaged	0	0	0	0	0	0	0	0
**Inventory of Hazardous Materials Sites		7	33	74	34	153	54	20	375
**Debris	Total Weight (in tons)	3,974	17,745	29,297	70,753	845,507	414,809	31,581	1,413,666
**Fire	# of Potential Fires				0	7	3	0	10
***Casualties	Day Event								
	2 p.m.								
	-Minor	12	25	28	85	1,797	729	49	2,725
	-Major	4	7	8	29	657	261	17	983
	-Deaths	1	1	1	7	168	66	4	248
	Night Event								
	2 a.m.								
	-Minor	18	38	42	134	1,853	924	60	3,069
	-Major	4	9	10	38	565	282	17	926
	-Deaths	1	1	1	7	104	54	3	171
	Commuting Event								
	5 p.m.								
	-Minor	14	29	31	0	1,790	821	87	2,772
	-Major	5	10	10	0	833	308	72	1,240
	-Deaths	1	1	3	0	169	68	12	255

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

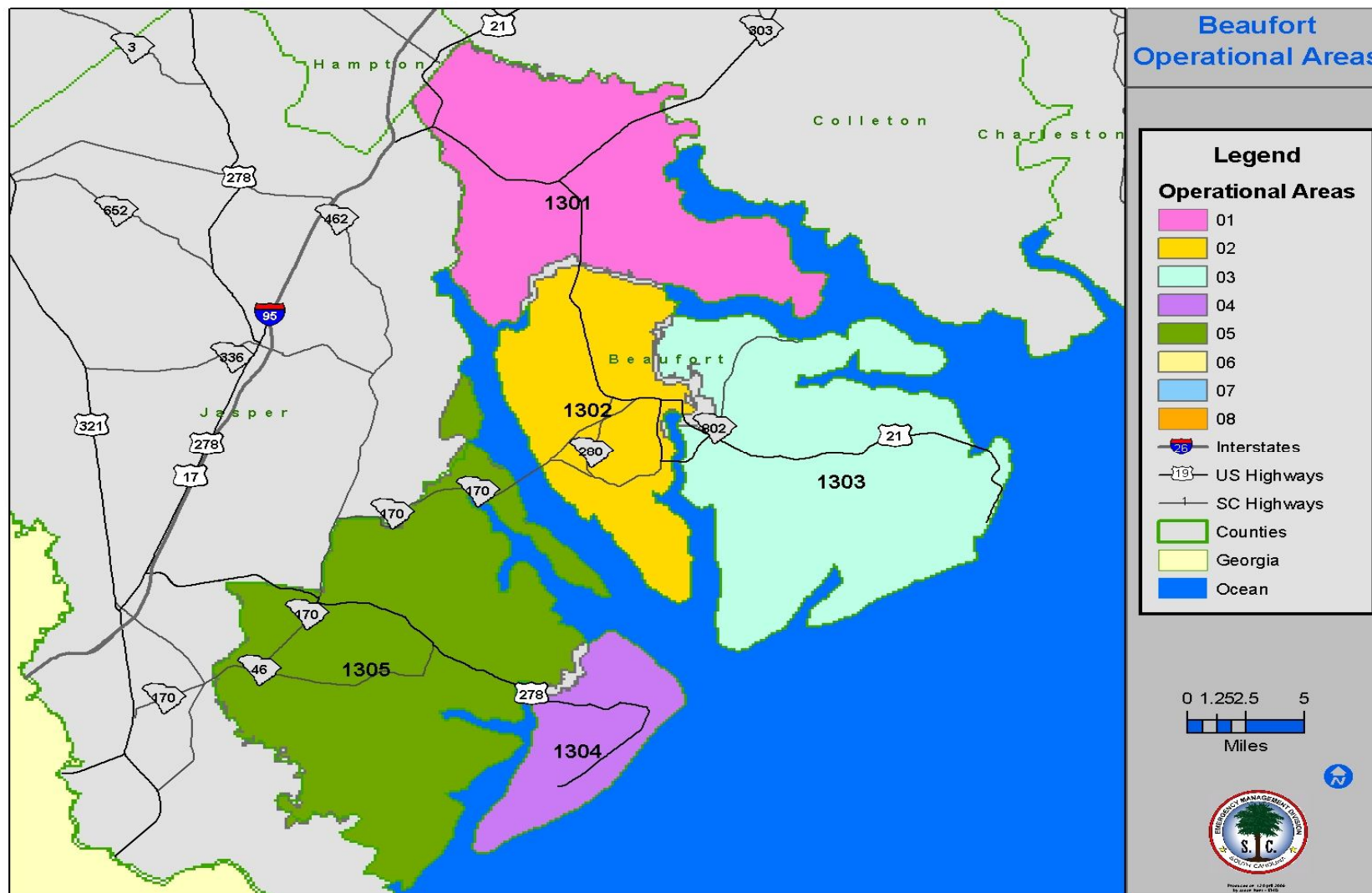


**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Dorchester County Category	Description	Operational Area (3501)	Operational Area (3502)	Operational Area (3503)	Operational Area (3504)	Operational Area (3505)	Operational Area (3506)	Operational Area (3507)	County Total
***Power Outage	Total # of Households	1,015	2,071	2,226	2,265	19,255	11,209	1,015	39,055
	Day 1	1,937			1,754	20,340	11,311	989	36,331
		Combination of (3501, 3502, & 3503)							
	Day 30				75	3,032	1,372	81	4,561
***Water Shortage	Day 1				0	18,347	0	0	18,347
	Day 30				0	0	0	0	0
***Residential Damage	Total # of Households	1,015	2,071	2,226	2,265	19,255	11,209	1,015	39,055
	Moderately damaged				661	7,901	3,773	421	12,757
	Severely damaged				586	2,652	2,048	283	5,569
	Completely Destroyed				556	8,190	3,981	299	13,026

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

# BEAUFORT COUNTY



**OPERATIONAL AREA DESCRIPTIONS**

<b>COUNTY NAME: BEAUFORT</b>			
<b>COUNTY CODE: Beau</b>			
<b>County/ID</b>	<b>FIPS Code</b>	<b>Location</b>	<b>Boundary</b>
<b>Beau -1</b>	1301	Sheldon	West boundary is the county line and the Pocotaligo River. North boundary is county line / Combaee River. East and southern boundary is the Coosaw River. Includes Chisolm and Williman Islands.
<b>Beau -2</b>	1302	Beaufort	Include the entirety of Port Royal Island as bordered by the Broad, Beaufort and Coosaw Rivers. Includes Beaufort and Paris Island Marine Corps Recruit Depot and the US Marine Corps Air Station..
<b>Beau -3</b>	1303	St Helena Island	Includes the islands of St. Helena, Ladys and Fripp also Huntington State Park as bounded by Port Royal Sound, the Atlantic Ocean and St. Helena Sound
<b>Beau -4</b>	1304	Hilton Head	Include the entire island of Hilton Head as bounded by Port Royal Sound, the Atlantic Ocean and Calibogue Sound.
<b>Beau -5</b>	1305	Bluffton	Bounded by the county line to the west and south. The Broad River to the north and east. Includes Bull, Daufuskie and Pinckney Islands.

**Attachment C to Basic Plan**  
**Operational Area Planning**

Beaufort County Category	Description	Operational Area 1 (3.40%)	Operational Area 2 (36.85%)	Operational Area 3 (15.55%)	Operational Area 4 (28.45%)	Operational Area 5 (15.75%)	County Total
Demographics	Population	5,110	55,379	23,369	42,756	23,670	150,283
	Total Households	1,875	17,385	8,971	18,081	9,783	56,095
Additional Demographic Information	Age 65 or older	834	8,955	3,782	6,919	3,830	24,320
	Non English Speaking HH	495	5,308	2,245	4,102	2,271	14,421
	Homeless	50	536	226	414	229	1,455
	HH w/o Transportation	93	1,002	423	775	429	2,722
	Disabled	1,109	11,904	5,027	9,198	5,092	32,330
Initial Shelter	Displaced Households	127	870	596	303	84	1,980
	Total Persons per H/H (2.5 people per H/H) displaced	317	2,174	1,491	758	209	4,950
	Remaining HH Sheltered-In Place	1,748	16,515	8,375	17,778	9,700	54,116
	Total Persons Sheltered-In Place	4,371	41,287	20,938	44,444	24,249	135,289
	# of Persons Seeking Short-term ARC shelter	44	230	155	65	16	511
Animal Response	# of pets needing shelter	12	60	40	17	4	133

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Beaufort County Needs Assessment	Description	Operational Area 1 (3.40%)	Operational Area 2 (36.85%)	Operational Area 3 (15.55%)	Operational Area 4 (28.45%)	Operational Area 5 (15.75%)	County Total
Drinking Water: 3 liter bottle per person per day	ARC Sheltered	133	691	466	196	48	1,534
	Total Persons Sheltered in Place	13,112	123,862	62,814	133,333	72,747	405,867
	Emergency Workers (10% of displaced persons)	95	652	447	227	63	1,485
	Total Liters of water per day	13,340	125,206	63,726	133,756	72,857	408,886
Meals (2 meals per day)	ARC Sheltered	89	461	310	131	32	1,023
	Total Persons Sheltered in Place	8,741	82,575	41,876	88,889	48,498	270,578
	Emergency Workers (10% of displaced persons)	63	435	298	152	42	990
	Total Meals Per Day	8,893	83,470	42,484	89,171	48,572	272,590
Ice = 8 lb. Bag daily (1 bag per person)	ARC Sheltered	44	230	155	65	16	511
	Total Persons Sheltered in Place	4,371	41,287	20,938	44,444	24,249	135,289
	Emergency Workers (10% of displaced persons)	32	217	149	76	21	495
	Total Bags of Ice per Day	4,447	41,735	21,242	44,585	24,286	136,295
Generators	1 per 385 ARC sheltered	1	1	1	1	1	5
Portable Toilets	1 per 15 ARC sheltered	2	16	11	5	2	36

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Beaufort County Category	Description	Operational Area 1	Operational Area 2	Operational Area 3	Operational Area 4	Operational Area 5	County Total
<b>**Essential Facilities</b>	<b>#Police Stations Total</b>	0	0	0	0	1	1
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	0	0	0	0	0
	<b>#Schools Total</b>	2	24	6	9	3	44
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	2	24	6	8	0	40
	<b># Hospitals Total</b>	0	2	0	1	0	3
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	2	0	1	0	3
	<b># Fire Stations Total</b>	2	7	6	6	4	25
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	2	7	6	4	1	20
<b>**Utilities</b>	<b># Potable Water Pipeline Leaks</b>	53	5	6	1	1	66
	<b># Potable Water Pipeline Breaks</b>	43	12	14	1	0	70
	<b># Electrical Power Facilities</b>	0	13	0	1	0	14
	<b># Electrical Power Facilities Damaged</b>	0	0	0	0	0	0
	<b># Waste Treatment Plants</b>	1	23	3	102	16	145
	<b># Waste Treatment Plants Damaged</b>	0	0	0	0	0	0
	<b># Communication Facilities</b>	0	4	0	1	1	6
	<b># Communication Facilities Damaged</b>	0	0	0	0	0	0

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan  
Operational Area Planning  
Table 1**

Beaufort County Category	Description	Operational Area 1	Operational Area 2	Operational Area 3	Operational Area 4	Operational Area 5	County Total
<b>**Transportation</b>	<b># Bridges</b>	11	14	11	6	18	60
	<b># Bridges Damaged</b>	5	1	5	0	0	11
	<b># Airports</b>	0	2	1	1	0	4
	<b># Airports Damaged</b>	0	0	0	0	0	0
	<b># Rail Facilities</b>	2	0	0	0	0	2
	<b># Rail Facilities Damaged</b>	0	0	0	0	0	0
<b>**Inventory of Hazardous Materials Sites</b>		36	184	33	115	67	435
<b>**Debris</b>	<b>Total Weight (in thousands of tons)</b>	21.51	215.04	98.06	108.68	45.30	488.59
<b>**Fire</b>	<b># of Potential Fires</b>	0	1	2	3	1	7
<b>***Casualties</b>	<b>Day Event</b>						
	<b>2 p.m.</b>						
	<b>-Minor</b>	34	164	95	101	34	429
	<b>-Major</b>	10	44	27	18	6	106
	<b>-Deaths</b>	2	10	5	4	1	22
	<b>Night Event</b>						
	<b>2 a.m.</b>						
	<b>-Minor</b>	38	264	136	63	25	525
	<b>-Major</b>	10	67	33	12	4	126
	<b>-Deaths</b>	1	11	5	1	0	18
	<b>Commuting Event</b>						
	<b>5 p.m.</b>						
	<b>-Minor</b>	31	190	101	78	31	430
	<b>-Major</b>	10	54	34	18	15	132
	<b>-Deaths</b>	1	10	6	2	2	22

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

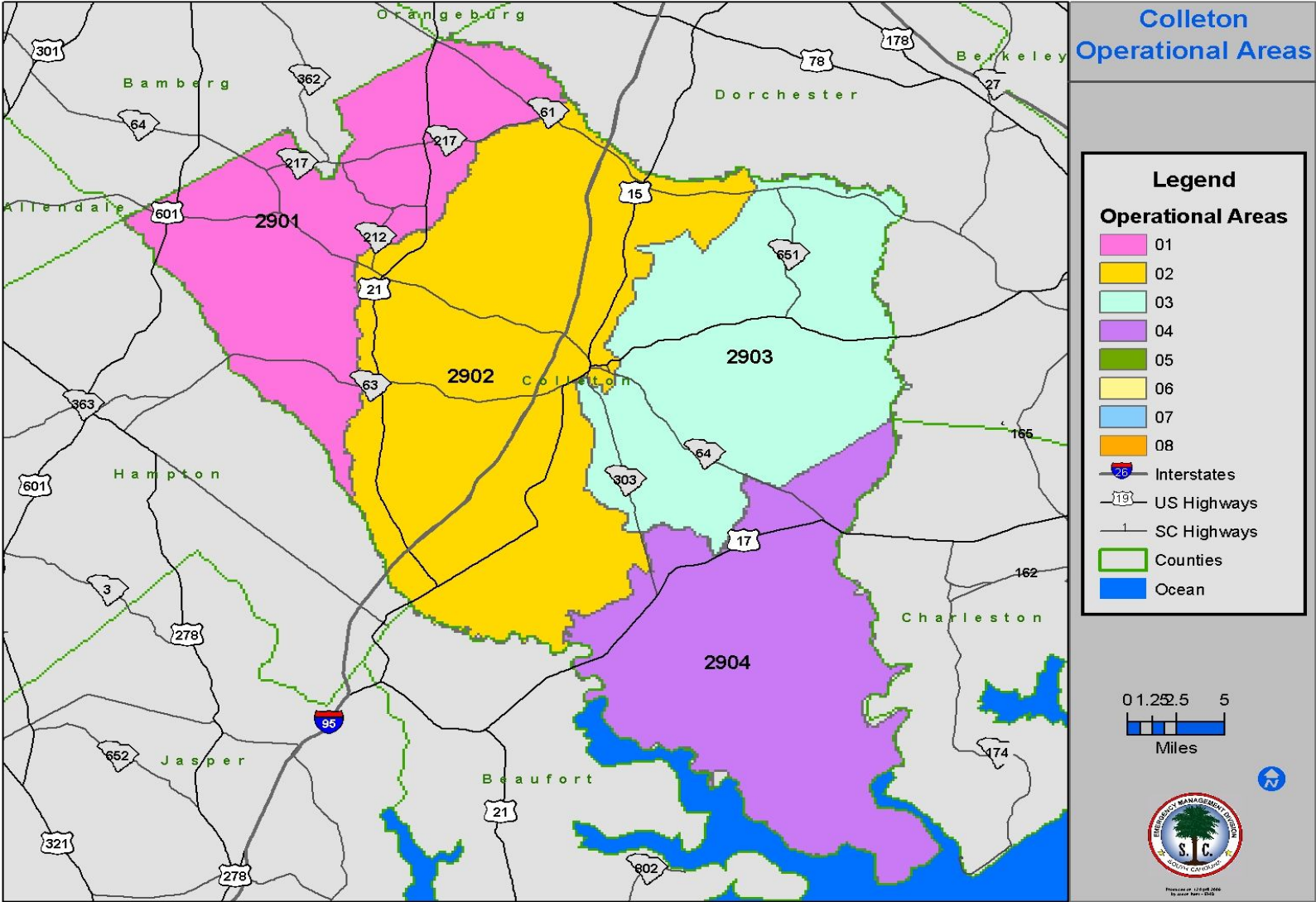
**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Beaufort County Category	Description	Operational Area 1	Operational Area 2	Operational Area 3	Operational Area 4	Operational Area 5	County Total
***Power Outage	Total # of Households	1,875	17,385	8,971	18,081	9,783	56,095
	Day 1	0	6,276	0	0	0	6,276
	Day 30	0	76	0	0	0	76
***Water Shortage	Day 1	274	0	0	0	0	0
	Day 30	0	0	0	0	0	0
***Residential Damage	Total # of Households	1,875	17,385	8,971	18,081	9,783	56,095
	Moderately damaged	632	3,807	2,236	1,895	1,312	9,882
	Severely damaged	362	1,158	896	261	187	2,864
	Completely Destroyed	158	792	798	200	86	2,034

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.



COLLETON COUNTY



Attachment C to Basic Plan  
Operational Area Planning  
Table 1

**OPERATIONAL AREA DESCRIPTIONS**

<b>COUNTY NAME: COLLETON</b>			
<b>COUNTY CODE: Coll</b>			
<b>County/ID</b>	<b>FIPS CODES</b>	<b>Location</b>	<b>Boundary</b>
<b>Coll -1</b>	2901	Lodge	West and south borders are the county lines. East and south boundaries generally a line following Buckhead Creek to the Little Salkehatchie River to the county line. Includes Hodge, Williams and Smokes.
<b>Coll -2</b>	2902	Walterboro	West and south boundary generally a line following Buckhead Creek to the Little Salkehatchie River to the county line. North boundary is the county line and eastern boundary from the north and the county line following Sidneys Rd, Round O Rd, Pleasant Grove Rd, Stock Farm Rd, Burlington Rd, Ivanhoe Rd to Walterboro, east of Walterboro to Jefferies Road, Asheboro Rd, SC 303, Fox Creek Rd, Cuckold Creek to the county line. Includes the town of Walterboro.
<b>Coll -3</b>	2903	Cottageville	Western boundary from the north and the county line following Sidneys Rd, Round O Rd, Pleasant Grove Rd, Stock Farm Rd, Burlington Rd, Ivanhoe Rd to Walterboro, east of Walterboro to Jefferies Rd, Asheboro Rd. North and east is the county line. Southern boundary is Lowndes Landing Rd, Parkers Ferry Rd, Highway 64, Fuller Swamp Creek and Horseshoe Creek. Includes Cottageville.
<b>Coll -4</b>	2904	Donnelley Wildlife Management Area	Bounded by Combahee River to the west, south and east by Edisto River and the Saint Helena Sound. The north Lowndes Landing Rd, Parkers Ferry Rd, Highway 64, Fuller Swamp Creek and Horseshoe Creek and Fox Creek Road, Cuckold Creek to the county line. Includes the Donnelley Wildlife Management Area, Bear island Management Area and St Helena Sound Heritage Trust Preserve.

**Attachment C to Basic Plan**  
**Operational Area Loss Planning**  
**Table 1**

Colleton County Category	Description	Operational Area 2901 (10.40%)	Operational Area 2902 (50.87%)	Operational Area 2903 (32.42%)	Operational Area 2904 (6.31%)	County Total
Demographics	Population	4,146	20,282	12,926	2,516	39,870
	Total Households	1,508	7,715	4,805	1,044	15,072
Additional Demographic Information	Age 65 or older	538	2,630	1,676	327	5,171
	Non English Speaking HH	119	582	371	72	1,144
	Homeless	41	201	128	25	395
	HH w/o Transportation	77	375	239	47	738
	Disabled	911	4,457	2,841	554	8,763
Initial Shelter	Displaced Households	0	144	485	221	850
	Total Persons per H/H (2.6 people per H/H) displaced	0	374	1,261	574	2,209
	Remaining HH Sheltered-In Place	1,508	7,571	4,320	823	14,222
	Total Persons Sheltered-In Place	3,921	19,686	11,232	2,139	36,978
	# of Persons Seeking Short-term ARC shelter	0	44	150	58	252
Animal Response	# of pets needing shelter	0	11	39	15	66

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Colleton County Needs Assessment	Description	Operational Area 2901 (10.40%)	Operational Area 2902 (50.87%)	Operational Area 2903 (32.42%)	Operational Area 2904 (6.31%)	County Total
Drinking Water: 3 liter bottle per person per day	ARC Sheltered	0	131	450	175	756
	Total Persons Sheltered in Place	11,764	59,057	33,695	6,418	110,935
	Emergency Workers (10% of displaced persons)	0	112	378	172	663
	Total Liters of water per day	11,764	59,300	34,524	6,766	112,354
Meals (2 meals per day)	ARC Sheltered	0	87	300	117	504
	Total Persons Sheltered in Place	7,843	39,371	22,464	4,279	73,956
	Emergency Workers (10% of displaced persons)	0	75	252	115	442
	Total Meals Per Day	7,843	39,533	23,016	4,510	74,902
Ice = 8 lb. Bag daily (1 bag per person)	ARC Sheltered	0	44	150	58	252
	Total Persons Sheltered in Place	3,921	19,686	11,232	2,139	36,978
	Emergency Workers (10% of displaced persons)	0	37	126	57	221
	Total Bags of Ice per Day	3,921	19,767	11,508	2,255	37,451
Generators	1 per 385 ARC sheltered	0	1	1	1	3
Portable Toilets	1 per 15 ARC sheltered	0	3	10	4	17

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Loss Planning**  
**Table 1**

Colleton County Category	Description	Operational Area (2901)	Operational Area (2902)	Operational Area (2903)	Operational Area (2904)	County Total
<b>**Essential Facilities</b>	<b>#Police Stations Total</b>	0	1	0	0	1
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	1	0	0	1
	<b>#Schools Total</b>	2	18	6	4	30
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	2	18	6	4	30
	<b># Hospitals Total</b>	0	1	0	0	1
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	0	1	0	0	1
	<b># Fire Stations Total</b>	3	6	3	3	15
	<b>*Probability of at Least Moderate Damage &gt;50%</b>	2	6	3	3	14
<b>**Utilities</b>	<b># Potable Water Pipeline Leaks</b>	0	2	1	4	7
	<b># Potable Water Pipeline Breaks</b>	0	4	2	12	18
	<b># Electrical Power Facilities</b>	1	5	0	0	6
	<b># Electrical Power Facilities Damaged</b>	0	0	0	0	0
	<b># Waste Treatment Plants</b>	0	10	5	0	15
	<b># Waste Treatment Plants Damaged</b>	0	0	0	0	0
	<b># Communication Facilities</b>	0	0	1	0	1
	<b># Communication Facilities Damaged</b>	0	0	0	0	0

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Planning**  
**Table 1**

Colleton County Category	Description	Operational Area (2901)	Operational Area (2902)	Operational Area (2903)	Operational Area (2904)	County Total
<b>**Transportation</b>	<b># Bridges</b>	52	142	44	11	249
	<b># Bridges Damaged</b>	0	42	38	5	85
	<b># Airports</b>	0	0	1	0	1
	<b># Airports Damaged</b>	0	0	0	0	0
	<b># Rail Facilities</b>	0	0	0	0	0
	<b># Rail Facilities Damaged</b>	0	0	0	0	0
<b>**Inventory of Hazardous Materials Sites</b>		5	110	48	14	177
<b>**Debris</b>	Total Weight (in thousands of tons)	4.55	87.28	111.22	64.15	267
<b>**Fire</b>	<b># of Potential Fires</b>	0	1	1	1	3
<b>***Casualties</b>	<b>Day Event</b>					
	2 p.m.					
	-Minor	3	68	106	42	219
	-Major	0	16	32	14	61
	-Deaths	0	3	7	3	14
	<b>Night Event</b>					
	2 a.m.					
	-Minor	4	64	161	43	272
	-Major	0	11	41	12	65
	-Deaths	0	2	5	2	9
	<b>Commuting Event</b>					
	5 p.m.					
	-Minor	3	58	126	43	230
	-Major	0	21	66	29	116
	-Deaths	0	3	10	4	18

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

**Attachment C to Basic Plan**  
**Operational Area Loss Planning**  
**Table 1**

Colleton County Category	Description	Operational Area (2901)	Operational Area (2902)	Operational Area (2903)	Operational Area (2904)	County Total
***Power Outage	Total # of Households	1,508	7,715	4,805	1,044	15,072
	Day 1	0	2,654	1,504	741	4,899
	Day 30	0	11	2	1	15
***Water Shortage	Day 1	0	0	0	0	0
	Day 30	0	0	0	0	0
***Residential Damage	Total # of Households	1,508	7,715	4,805	1,044	15,072
	Moderately damaged	427	2,434	1,554	501	4,916
	Severely damaged	48	760	1,320	99	2,227
	Completely Destroyed	0	115	863	583	1,561

NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.

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NOTE: Bottled Water and Ice are worse case daily requirements. Sheltered In-Place are homeowners who remain in their homes but are w/out water and power. \*At least moderate damage means the facility needs to be inspected before use. \*\*Essential Facility loss estimates, debris, and hazardous material inventory are based on 2000 HAZUS data. \*\*\*The population data was developed using the 2008 projected US Census Estimates.



**Table 2 – Critical Resources Needs Assessment**

The requirements listed below are estimates on which to base the State's resource requirements following a strong earthquake. The projected requirements were based on the loss estimation summary for Berkeley, Charleston, Dorchester, Beaufort, and Colleton counties.

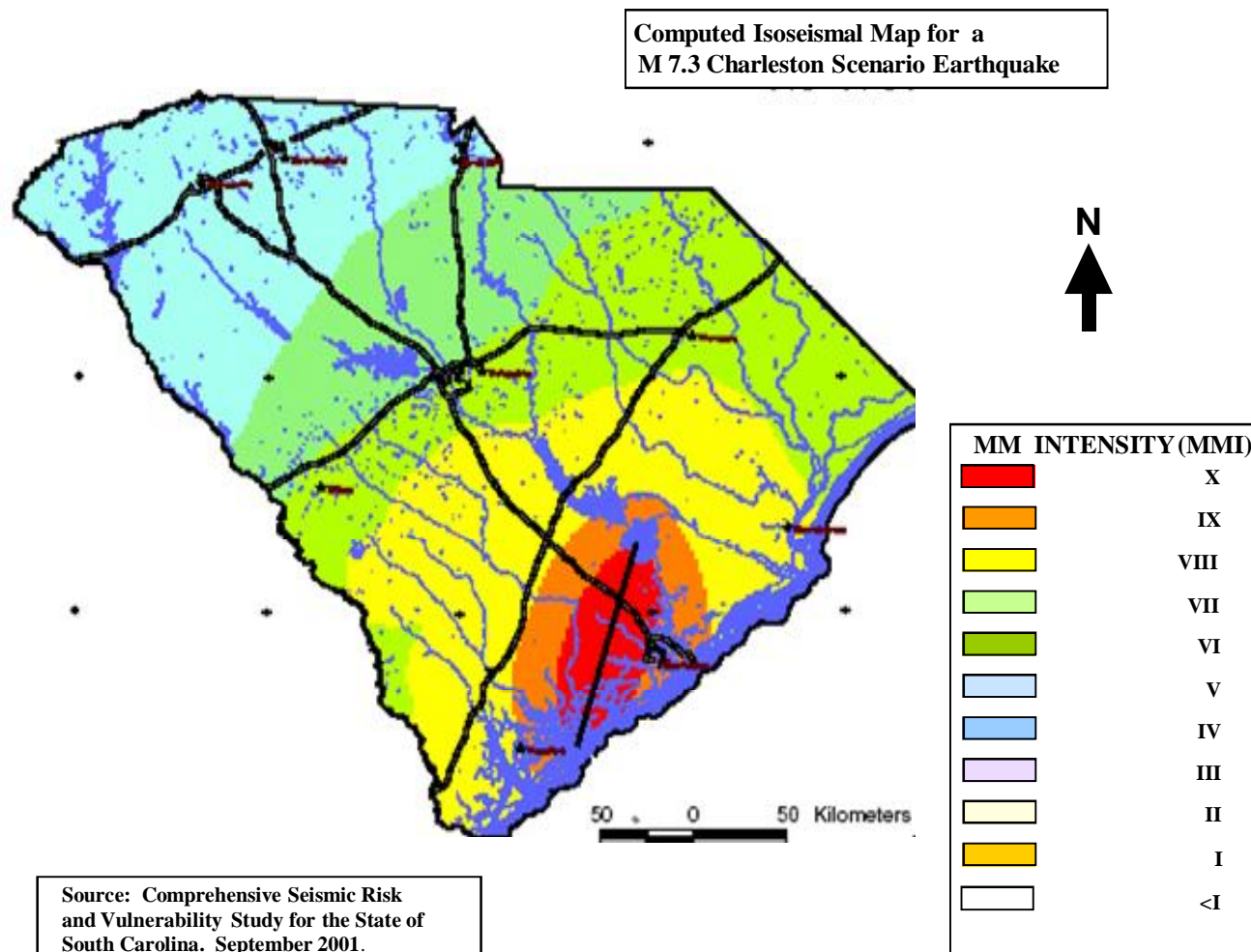
Resource	Projected Requirement	Sources	Projected Shortfall	Additional Sources
Blankets 2 per person sheltered	29,640 (14,820 sheltered)	B&CB limited supply	29,640 (14,820 sheltered)	FEMA Voluntary Organizations
Cots 1 per person shelter x 20% overture	17,784	B&CB limited supply	17,784	Contractors FEMA EMAC
Mobile Communication Vehicles	21 (One per OPS Area)	1) SCEMD 2) Counties	21	FEMA EMAC
Body Bags	1,173 deaths based on a daytime event	DHEC acquired through Coroners' Association	1,173	FEMA EMAC Contractors
Tents				
Mobile Kitchens	21 (1 per OPS Area)	Voluntary Organizations		
Medical Units	21 (1 per OPS Area)	1)DHEC 2)Voluntary Units		
Inspection Teams to evaluate buildings post-disaster	105 teams (5 teams per OPS Area)	B&CB Volunteer Groups	105	FEMA EMAC Private Contractors
Heavy Equipment				
Debris removal equipment	105 teams (5 teams per OPS Area)	1) Military Department 2) Counties 3) State Agencies		
Light Sets	1 per sheltered HH			

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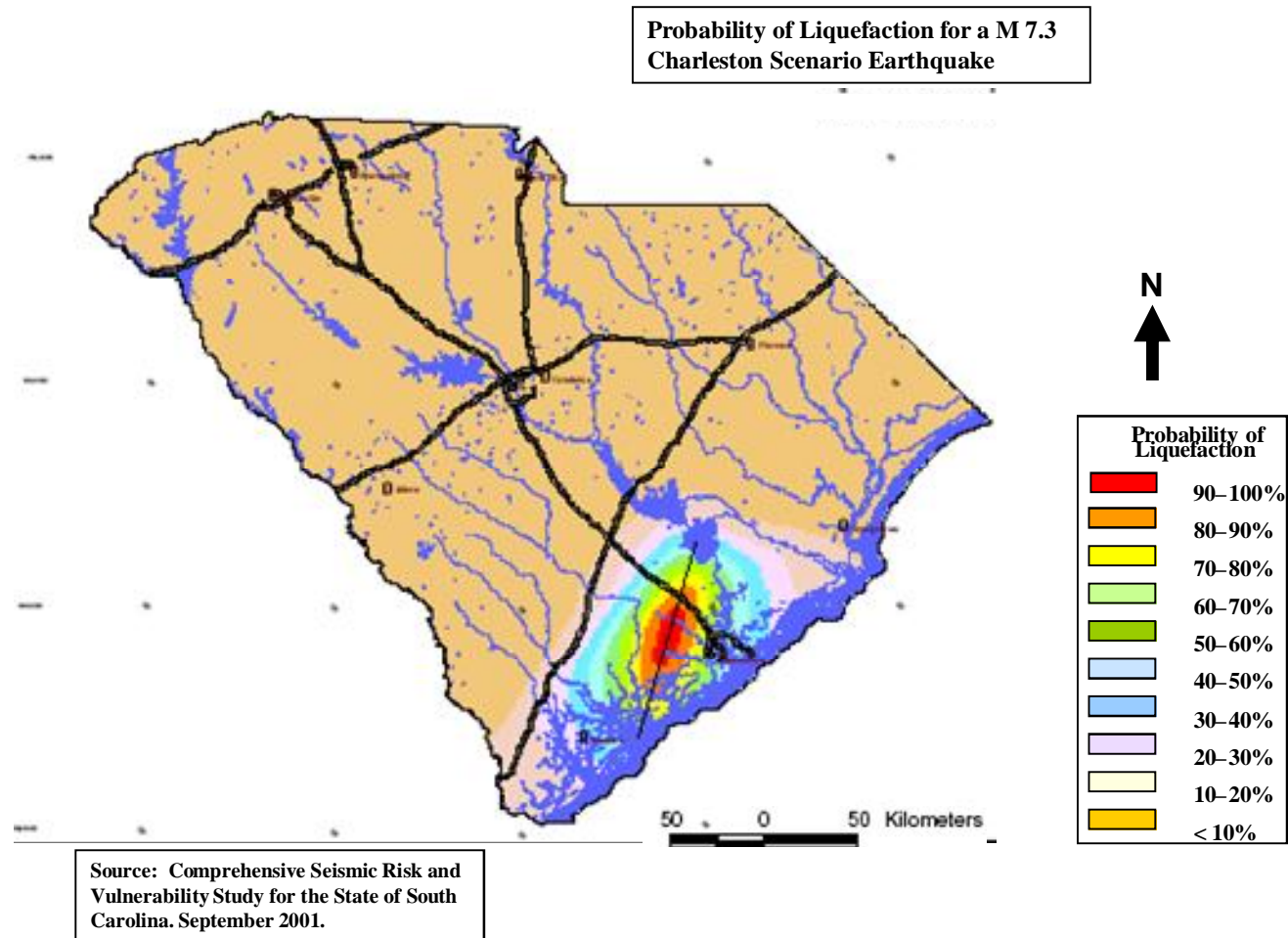
The Modified Mercalli Scale measures the severity of earthquake effects. The Magnitude Scale measures the amount of energy released from the earthquake. The Intensity Scale differs from the Magnitude Scale in that the effects of any one earthquake vary greatly from place to place, so there may be many Intensity values (e.g.: IV, VII) measured from one earthquake. Each earthquake, on the other hand, should have just one Magnitude. These are typical effects of earthquakes in various magnitude ranges. Source: Adapted from *U.S. Geological Survey* documents.

<b>The Modified Mercalli Scale</b>			<b>The Magnitude Scale</b>
I	Micro	( <i>I</i> ) Not felt except by a very few under especially favorable conditions.	0.0 – 3.0
II – III	Minor	( <i>II</i> ) Felt only by a few persons at rest, especially on upper floors of buildings. ( <i>III</i> ) Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.	3.0 – 3.9
IV – V	Light	( <i>IV</i> ) Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably. ( <i>V</i> ) Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.	4.0 – 4.9
VI – VII	Moderate	( <i>VI</i> ) Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. ( <i>VII</i> ) Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.	5.0 – 5.9
VII – IX	Strong	( <i>VIII</i> ) Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. ( <i>IX</i> ) Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.	6.0 – 6.9
VIII or higher	Major to Great	( <i>X</i> ) Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. ( <i>XI</i> ) Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. ( <i>XII</i> ) Damage total. Lines of sight and level are distorted. Objects thrown into the air.	7.0 and higher

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## **ANNEX 1 (ESF-1)**

### **TRANSPORTATION SERVICES**

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**PRIMARY:** SC Department of Transportation (SCDOT)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this annex, are assigned additional hazard specific responsibilities for earthquake response.

SC Department of Public Safety (SCDPS), SC Law Enforcement Division (SLED), and Division of Aeronautics

#### **I. INTRODUCTION**

- A. The State's transportation system is comprised of:
  - 1. Ground (roads and railroads)
  - 2. Air (commercial, military, and private airports)
  - 3. Water (navigable waterways, terminals, and ports)
- B. A Charleston area earthquake similar to the 1886 magnitude event will structurally affect potentially 587 bridges in the State. Of these bridges, 445 (85%) are in Berkeley, Charleston, and Dorchester counties. Access to this tri-county region through the roadway system will remain non-existent for an extended period. Area ports/terminals will close pending damage assessment and channel inspection. Area airports will close pending damage assessment of the runways and facilities. The planning and work to restore the roadway, waterway, and airport transportation systems will begin immediately.
- C. ESF-1 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

#### **II. MISSION**

ESF-1 will coordinate the transportation assets needed and the infrastructure essential to support earthquake response, and will provide recommendations on the safety of the transportation infrastructure (roadways, waterways, and airports) within the disaster area.

### III. CONCEPT OF OPERATIONS

- A. Hazard analysis indicates an earthquake will disrupt the transportation network into and within the Operational Areas and the surrounding areas. Transportation into and within Operational Areas will be challenging. Transporting heavy equipment and other resources will require unique solutions. Although the primary attention will focus on the road networks, SERT should initially anticipate access only by air or by water into the disaster areas.
- B. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- C. ESF-1 functions include but are not limited to:
  - 1. Immediately recommending the closure of all ground, water, and air transportation routes into the impacted areas until engineers and/or inspectors complete:
    - a. Assessment, clearance, and structural evaluation of the roads and bridges for use by emergency and resource vehicles to include load limitations. Priorities for bridges and roads assessments are for lifeline routes. Primary/Alternate Lifeline Routes will consist of:
      - (1) Interstate highways
      - (2) Primary roads
      - (3) Secondary roads
      - (4) Major routes to hospitals and other critical facilities as prioritized by SERT Executive Group.
    - b. Assessment and clearance of ports, terminals and waterways for use. NOTE: The US Coast Guard (USCG), the SC Ports Authority, US Army Corp Engineers (USCOE), National Oceanic and Atmospheric Administration (NOAA) and the SC Department of Natural Resources (SCDNR) will evaluate waterways in anticipation of using rivers and streams to provide access.

- c. Assessment and structural evaluation and clearance of airport runways and facilities for use, including commercial and military airports, to determine the use of large aircraft.
  - d. Coordination with the rail industry to assess railway damage into and within the disaster area.
- 2. In coordination with ESF-16 and ESF-13, recommend the limitation and restriction of all transportation routes into and out of the stricken area(s) for emergency response use only. SCDOT will advise local authorities to limit the use of all roadways within the stricken area to emergency response use only.
- 3. Coordinate with the other ESFs to prepare a Transportation Plan. The Plan will include the strategy to provide the transportation assets that meet the needs and requirements for each Operational Area.
- 4. Coordinate with the State Ports Authority for port/terminal closures.
- 5. Coordinate with the USCG for waterway controls and closures.
- 6. Coordinate with ESF-16 to close roads (see III.A.1) leading into and out of the disaster areas.
- 7. Coordinate with ESF-16 to identify routes and entry points for:
  - a. Primary and Alternate Inspection Routes— routes pre-identified from the State Emergency Operations Center (SEOC) to the Operational Areas from a strong earthquake. Primary routes will be based on Seismic Response Team expertise and best available HAZUS data. See Attachment A to this Annex.
  - b. Primary and Alternate Lifeline Routes – These routes are identified post-disaster to move resources and emergency vehicles into and within the Operational Areas. The Primary/Alternate Inspection routes could become “Primary/Alternate Lifeline Routes” post-disaster.
  - c. Diversion Routes -These routes are identified post-disaster and intended to move emergency and resource vehicles within the Operational Areas. ESF-16 will coordinate with ESF-1 to identify diversion routes.
  - d. Transportation Entry Points. Pre-identified locations in an Operational Area where resources (equipment, supplies,

personnel, etc.) will be received and later deployed within the area. The transportation entry points could be roadways, waterways, airports, and heliports within the operational area. These points of entry are situation dependent and could change due to the severity of the earthquake. See Annex 1, Attachment C, for a list of transportation entry point locations.

- e. Immediately after the earthquake, SCDOT will immediately deploy its Seismic Response Teams (SRT) to establish lifeline routes into the impacted area. There are currently 11 SRT teams. See Attachment B to this Annex for more information on SRT Teams. Initially the SRT will use the pre-planned Primary/Alternate Inspection Routes list to begin the establishment of lifelines into the disaster areas; but lifeline routes designation are situation dependent.
  - 8. Representatives from SCDPS and SLED will become members of the SRT as lifeline routes are established. SCDPS and SLED support to the SRT Team is to assist in identifying transportation lifelines and help to maintain law and order during the evaluation and inspection of bridges.
- D. ESF-1 will coordinate and provide transportation within the categories noted below:
- 1. Waterways:
    - 1. Coordinate the need and use of barges from the Army Corps of Engineers.
    - 2. Request the USCG to control boat traffic into the ports and surrounding waterways.
  - 2. Ground:

Coordinate the need and use of long-haul trailers, buses, vans, four-wheel drive vehicles, tractors, and railroad transport (flatbeds, boxcars, etc) to transport equipment, food, supplies, and emergency workers with ESF-7 and other ESFs.
  - 3. Air:

Aerial resources will provide visible damage information by the use of photographs or video transmitted to the SEOC and/or

verbally communicating observations to the SEOC to quickly assess the situation to determine:

- a. The extent and nature of the disaster's effects.
- b. The general condition of lifelines and critical facilities.
- c. The Air Branch section of ESF-1 will provide coordination of air assets and airspace, and effectively plan and manage all flight operations in support to the SEOC.

4. Aerial Reconnaissance:

- a. Aerial reconnaissance will involve collecting observed damaged information needed for bridge engineering inspections, input for ingress and egress analysis, medical, and public safety. SERT Operations Groups will review the entry point locations, transportation routes, and critical facilities identified in Attachment C to this Annex.
- b. Upon identification of reconnaissance locations, the Chief of Operations will request aerial reconnaissance of these locations through the Operations Tasking Group (OTG) to ESF-1 Air Branch Operations to determine damage information.
- c. Flight schedules and status of operations to conduct aerial assessments of the transportation routes and entry points into the disaster areas will be in accordance with Air Branch Plan.
- d. In most cases, air missions will require a flight in and return due to refueling needs.
- e. Based on number of flights, a shortfall may exist in which an aircraft may fly several missions. ESF-1 Air Branch will identify the shortfall and coordinate with other federal and state sources and private contractors to maintain a listing of potential sources for aerial support.

5. Reporting Systems

The information from the aerial reconnaissance will be sent to the SEOC through ESF-1 Air Branch as soon as possible. The information will be provided through the best available means. Some examples are:

- a. Digital photos.
- b. Voice transmission using VHF radios as fly-over occurs.
- c. UHF radios and 800 Mhz radios upon return from mission.
- d. Hand delivering reports and maps back to SEOC after the team completes the mission.
- e. Slow Scan TV (SSTV) to transmit video images from an aerial platform.
- f. Satellite Digital Imaging System (SDIS) to transmit digital images via satellite phone to the Internet.

#### IV. ESF ACTIONS

The emergency operations necessary for the performance of this function include but are not limited to:

##### A. Preparedness

1. Prepare a Transportation Plan for the Operational Areas. The Transportation Plan shall include but not be limited to:
  - a. Road closures.
  - b. Primary/Alternate Inspection Routes to Operational Areas.
  - c. Transportation utilization to move resources into an Operational Area (land, water, and air).
  - d. Develop strategies for the prioritization of requested land, water, and air resources.
  - e. Identify and maintain a list of ESFs transportation needs in terms of quantity in freight carloads (number of) or truckloads (number of) in cubic feet or tons.
  - f. Identify and maintain a listing of potential transportation shortfalls by Operational Area.
  - g. Assign SRT to Operational Areas and coordinate with state, federal, and private contractors to make up for Team shortfalls.

2. Analyze the Loss Estimation Reports prepared by SCEMD for transportation infrastructure damages by Operational Area.
3. Review Attachment C, Operational Area Seismic Reconnaissance List identifying transportation entry points and routes to effectively plan and manage all flight operations in support of an earthquake response.
4. Identify aerial shortfall and coordinate with other federal and state sources and private contractors to maintain a list of potential sources for aerial support.
5. Coordinate with ESF-13 and ESF-16 to assign law enforcement personnel to SRT to assist in identifying transportation lifelines and help to security during the evaluation and inspection of bridges.

**B. Response**

1. Implement ESF-1, Earthquake Checklist, Attachment A to this Annex.
2. Implement Transportation Plan (see IV.A.1)
3. Coordinate ESFs transportation requirements.
4. Activate SRT and establish Primary/Alternate Lifeline Routes.
5. Coordinate with and request ESF-13 and 16 to source and provide personnel to accompany SRT to maintain security.
6. Establish transportation routes priorities and coordinate with SERT on those priorities.
7. Coordinate with appropriate agencies to determine the damage status and the operability of airports and ports.
8. Immediately report information that may alter SERT Executive Group priorities and decisions.
9. Provide route clearance priorities to the SERT Operations Group.
10. Coordinate with ESF-16 to confirm diversion routes within Operational Areas.

11. Implement Air Branch Plan and execute flight missions for an earthquake response.

12. Validate resource shortfalls and obtain necessary resources.

**C. Recovery**

See SCEOP, Annex 1 (ESF-1), Section IV.C.

**D. Mitigation**

See SCEOP, Annex 1, (ESF-1), Section IV.D.

**V. RESPONSIBILITIES**

**A. SCDOT**

1. Prepare a Transportation Plan. (See IV.A.1.)
2. Review and update as necessary the Earthquake Checklist for ESF-1.
3. Plan and prepare for those estimated damages expected from an earthquake and its impact on the State transportation infrastructure.
4. Assign SRT to Operational Areas and coordinate with state, federal, and private contractors to make up for Team shortfalls.
5. Coordinate with ESF-16 and ESF-13 to identify primary and alternate inspection routes into Operational Areas.

**B. Department of Commerce, Division of Aeronautics (DOA)**

1. Coordinate with Civil Air Patrol (CAP) to review seismic transportation routes and entry points to effectively plan and manage all flight operations in support of an earthquake response. See Attachment C for the Operational Area Seismic Reconnaissance List.
2. Prepare flight plans to conduct reconnaissance of the transportation entry points and routes into the disaster areas.
3. Identify aerial shortfall and coordinate with other federal and state sources and private contractors to maintain a list of potential sources for aerial support.



**C. Civil Air Patrol (CAP)**

Coordinate with division of aeronautics to review seismic aerial reconnaissance list to effectively plan and manage all flight operations in support of an earthquake response. See for operational area seismic reconnaissance list.

**D. SCDPS**

1. Coordinate with ESF-1 and local emergency managers to identify roads that are critical to remain open in each Operational Area.
2. Annually review procedures to support ESF-1 SRT.

**E. SLED**

Annually review procedures to support ESF-1 SRT.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-1, Transportation supports this Annex.

**VII. ATTACHMENTS**

Attachment A	ESF-1 Earthquake Checklist
Attachment B	ESF-1 Seismic Response Team
Attachment C	Operational Area Seismic Reconnaissance List (Map and Table)

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**ESF-1 (Transportation)**

Date/Time complete

1. \* \_\_\_\_\_ Implement Transportation Plan for Operational Area planning.
2. \* \_\_\_\_\_ Request an aerial assessment of highway infrastructure.
3. \* \_\_\_\_\_ Conduct ground reconnaissance to begin establishing lifelines into the affected areas.
4. \* \_\_\_\_\_ Activate and mobilize Seismic Response Teams Coordinate with and request ESF-13 and 16 to source and provide personnel to accompany SRT to maintain security.
5. \_\_\_\_\_ Validate transportation requirements of all ESFs.
6. \_\_\_\_\_ Contact airport, seaport, and rail representatives to determine the damage status and the operability of facilities. Discuss with representatives the feasibility of using terminals, ports, other waterways, airports, and rails to transport response resources into the Operational Areas.
7. \_\_\_\_\_ Provide SERT Operations Group with listing of commercial airports that could support large military aircrafts.
8. \_\_\_\_\_ Coordinate with SERT Operations Group to provide route clearance priorities, and ensure they are consistent with the overall response priorities established by SERT Executive Group.
9. \_\_\_\_\_ Coordinate with ESF-16 to establish diversion routes into the damaged areas.
10. \_\_\_\_\_ Coordinate with ESF-3 on route clearance, and provide status reports as soon as possible.
11. \_\_\_\_\_ Coordinate the use of barges to transport heavy equipment and other resources into Operational Areas.
12. \_\_\_\_\_ Immediately report information that may alter priorities and decision-making by SERT Executive Group.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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## **ESF-1: SCDOT Seismic Response Team**

### **I. Purpose**

Inspect bridges to determine structural vulnerabilities and damages. Information from SCDOT Seismic Response Team will be used for decision-making on road closures, alternative routes, roads open for emergency vehicles, and prioritization of road repairs.

### **II. Organization**

Eleven teams consisting of three persons per team: a certified bridge inspector and either a civil or structural engineer. A representative from either ESF-13 or ESF-16 will accompany each team.

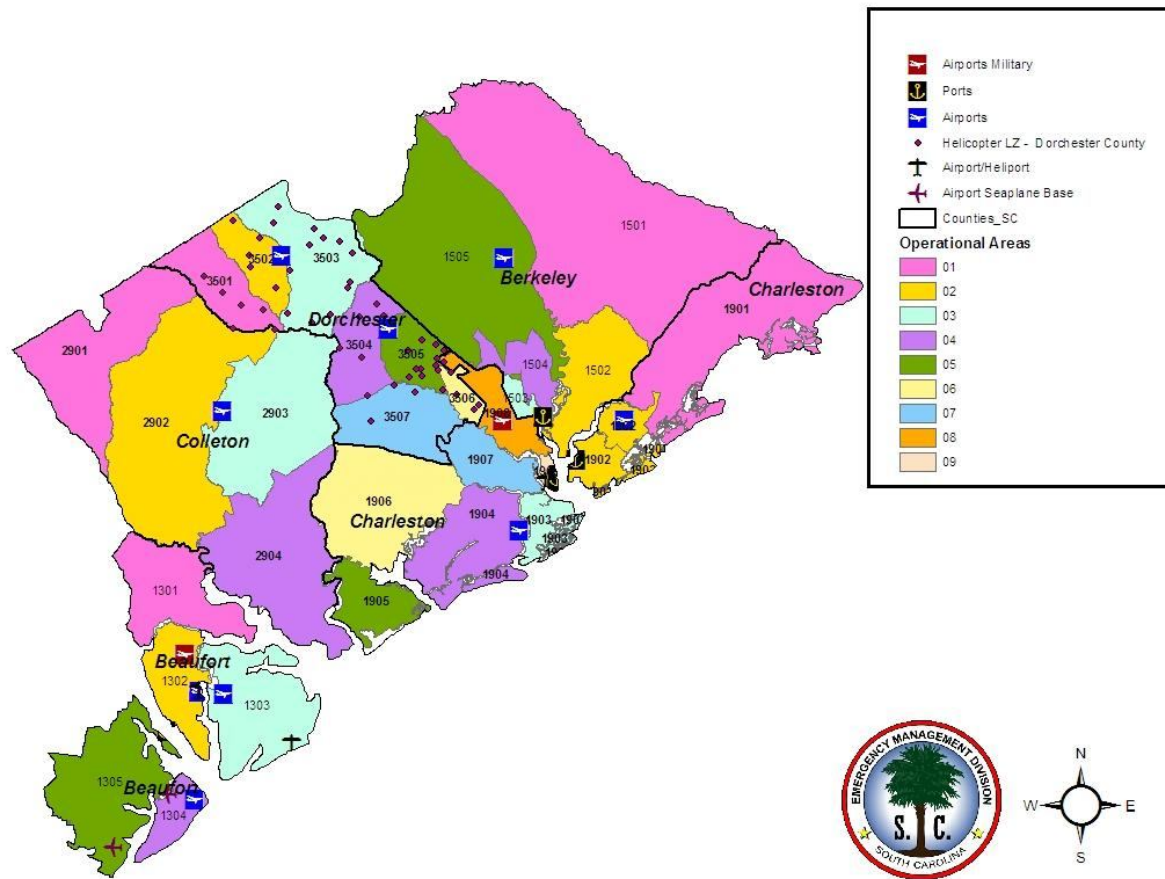
### **III. Coordinating Instructions**

- A. Transportation: Teams will assemble at their staging areas. After coordination with the SERT Operations Group, the team will deploy using ground and rotary, in the respective priority.
- B. Lodging: If overnight lodging is required, the team leader will coordinate with an ESF-1 representative on lodging availability and reimbursement procedures for each team member before departure.
- C. Communications: Satellite telephone will be the primary choice to communicate, followed by cellular telephones.
- D. Reporting Requirements: Teams will provide a report to ESF-1, who will discuss with SERT Operations Group for processing and decision-making. The initial reports from the field will provide information on the structure to handle normal weight loads, restricted loads, or closed bridge or road. Detailed inspection reports will be sent in at the end of the day.

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## OPERATIONAL AREA TRANSPORTATION ENTRY / RE-ENTRY POINTS MAP

The Operational Area Transportation Entry/Re-entry Points are pre-identified locations. These entry points are the locations where resources (equipment, supplies, personnel, etc.) will be received and later deployed within the operational areas. The transportation entry/re-entry points could be roadways, waterways, airports, and heliports within the operational area. These points of entry are situation dependent and could change due to the severity of the earthquake.



**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

<b>OPERATIONAL AREA TRANSPORTATION ENTRY/ RE-ENTRY POINTS (Aerial)</b>						
<b>ENTRY POINT</b>	<b>Function</b>	<b>County</b>	<b>Operational Area</b>	<b>If by Air Fixed/ Rotary/Seaport</b>	<b>Latitude</b>	<b>Longitude</b>
Salty Fare Landing	Seaplane Landing Base	Beaufort	1304	Seaport	32.233889	-80.754167
Melrose Landing	Seaplane Landing Base	Beaufort	1305	Seaport	32.139167	-80.868056
Lady's Island Airport	Airport	Beaufort	1303	Fixed/Rotary	32.411944	-80.634722
Fripps Island	Heliport	Beaufort	1303	Rotary	32.321863	-80.491218
Beaufort MCAS	Airport	Beaufort	1302	Fixed/Rotary	32.483333	-80.716667
Hilton Head	Airport	Beaufort	1304	Fixed/Rotary	32.224167	-80.6975
Berkeley County	Airport	Berkeley	1505	Fixed/Rotary	33.186944	-80.035278
Charleston AFB/INTL	Airport	Charleston	1908	Fixed/Rotary	32.898333	-80.040556
Port Charleston, Columbus Street Terminal (primary)	Terminal	Charleston	1908	Seaport	32.792169	-79.926075
Union Pier	Terminal	Charleston	1908	Seaport	32.785905	-79.924274
Wando Container	Terminal	Charleston	1908	Seaport	32.829593	-79.892448
North Charleston Container	Terminal	Charleston	1908	Seaport	32.898874	-79.963755
Naval Base Complex	Terminal	Charleston	1908	Seaport	32.85278	-79.95028
East Cooper	Airport	Charleston	1902	Fixed/Rotary	32.895556	-79.783333
Charleston Executive	Airport	Charleston	1904	Fixed/Rotary	32.7	-80.008333
Walterboro Municipal	Airport	Colleton	2903	Fixed/Rotary	32.918056	-80.636111
St. Matthews Baptist Church Parking Lot	Landing Zone	Dorchester	3501	Fixed/Rotary	33.096876	-80.54887
St. George Municipal	Airport	Dorchester	3502	Fixed/Rotary	33.194444	-80.508611
Dorchester County	Airport	Dorchester	3505	Fixed/Rotary	33.063889	-80.282778
Hwy 15 at Ediso River	Landing Zone	Dorchester	3502	Rotary	33.064465	-80.61295



**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

<b>OPERATIONAL AREA TRANSPORTATION ENTRY/ RE-ENTRY POINTS (Aerial)</b>						
<b>ENTRY POINT</b>	<b>Function</b>	<b>County</b>	<b>Operational Area</b>	<b>If by Air Fixed/ Rotary/Seaport</b>	<b>Latitude</b>	<b>Longitude</b>
HWY 78 AT Durhams Corner Road	Landing Zone	Dorchester	3503	Rotary	33.222727	-80.712541
Alston Middle School	Landing Zone	Dorchester	3505	Rotary	33.03289	-80.18382
Beech Hill Elem School	Landing Zone	Dorchester	3507	Rotary	32.949611	-80.22731
Old Orangeburg Rd at DSS building	Landing Zone	Dorchester	3505	Rotary	32.976697	-80.21319
Dorchester Rd Near 17A	Landing Zone	Dorchester	3505	Rotary	32.976127	-80.24091
Hwy 61 near 17A large open field	Landing Zone	Dorchester	3507	Rotary	32.960972	-80.27141
Wescott Golf Practice Field	Landing Zone	Dorchester	3506	Rotary	32.94474	-80.13892
Grace Church Parking Lot	Landing Zone	Dorchester	3505	Rotary	32.987202	-80.177
Heritage Square Kmart Shopping Center	Landing Zone	Dorchester	3505	Rotary	33.022802	-80.16541
Bilo Shopping Center Dorchester Village	Landing Zone	Dorchester	3505	Rotary	32.95353	-80.16844
Lieber Prison	Landing Zone	Dorchester	3504	Rotary	33.08675	-80.29301
Summerville Galleria	Landing Zone	Dorchester	3505	Rotary	32.996708	-80.18408
Boundary Baseball Field	Landing Zone	Dorchester		Rotary	33.00268	-80.1662
Summer Road at Clubhouse Road	Landing Zone	Dorchester	3507	Rotary	32.897324	-80.32273
Hwy 61 at Hwy 27 Behind Givhans Fire Dept.	Landing Zone	Dorchester	3504	Rotary	33.011641	-80.33923
Hwy 78 near Hwy 178 Oakridge Landfill	Landing Zone	Dorchester	3503	Rotary	33.135972	-80.3691
Ashley Phosphate at Dorchester Rd	Landing Zone	Dorchester	3506	Rotary	32.916111	-80.10261
Orangeburg Rd. Pinewood Prep School	Landing Zone	Dorchester	3505	Rotary	33.023462	-80.24134

**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

<b>OPERATIONAL AREA TRANSPORTATION ENTRY/ RE-ENTRY POINTS (Aerial)</b>						
<b>ENTRY POINT</b>	<b>Function</b>	<b>County</b>	<b>Operational Area</b>	<b>If by Air Fixed/ Rotary/Seaport</b>	<b>Latitude</b>	<b>Longitude</b>
Harleyville Fire Dept	Landing Zone	Dorchester	3503	Rotary	33.213129	-80.44876
Judge St Cement Plan	Landing Zone	Dorchester	3503	Rotary	33.241458	-80.43922
Hwy 15 at 1-26 Gas Station	Landing Zone	Dorchester	3503	Rotary	33.282663	-80.51539
Ridgeville Fire Dept	Landing Zone	Dorchester	3504	Rotary	33.085137	-80.345646
Coastal Center	Landing Zone	Dorchester	3505	Rotary	32.982958	-80.15076
Hwy 15 S Grover Fire Dept	Landing Zone	Dorchester	3501	Rotary	33.10493	-80.59566
St. George Middle School	Landing Zone	Dorchester	3502	Rotary	33.195986	-80.57805
Cathedral of Praise	Landing Zone	Dorchester	3506	Rotary	32.924216	-80.09373
Deming Way Judicial Complex	Landing Zone	Dorchester	3505	Rotary	33.041422	-80.21143
Summerville HS	Landing Zone	Dorchester	3505	Rotary	32.990891	-80.214388
Givhans State Park	Landing Zone	Dorchester	3504	Rotary	33.028822	-80.38691
Hwy 17A at Clubhouse Rd	Landing Zone	Dorchester	3504	Rotary	32.943443	-80.32732
Bethel United Methodist Church	Landing Zone	Dorchester	3503	Rotary	33.199183	-80.357525
Limestone Rd @Hwy 178	Landing Zone	Dorchester	3503	Rotary	33.147319	-80.363077
Horse Trail Rd at Quarter Horse Rd	Landing Zone	Dorchester	3502	Rotary	33.225177	-80.5547
Zion Rd at Horseford Rd	Landing Zone	Dorchester	3503	Rotary	33.088666	-80.40574
Zion Rd at Wire Rd	Landing Zone	Dorchester	3503	Rotary	33.075097	-80.44507
Wire Rd at Sandridge Rd	Landing Zone	Dorchester	3503	Rotary	33.091522	-80.49713
1st Bend Rd at Paradise Pond Rd	Landing Zone	Dorchester	3503	Rotary	33.226252	-80.42107
1st Bend Rd at 2nd Bend Rd	Landing Zone	Dorchester	3503	Rotary	33.219858	-80.38566
Hwy 15 @Hwy 178	Landing Zone	Dorchester	3503	Rotary	33.253491	-80.52684
St. George National Guard Armory	Landing Zone	Dorchester	3502	Rotary	33.173897	-80.57468
Gunbranch Rd at Sugarhill Rd	Landing Zone	Dorchester	3502	Rotary	33.13659	-80.52081

OPERATIONAL AREA TRANSPORTATION ENTRY/ RE-ENTRY POINTS (Aerial)						
ENTRY POINT	Function	County	Operational Area	If by Air Fixed/ Rotary/Seaport	Latitude	Longitude
Stokes Bridge Rd	Landing Zone	Dorchester	3502	Rotary	33.061624	-80.52433
Hwy 15 @ Edisto River	Landing Zone	Dorchester	3502	Rotary	33.064465	-80.61295
Wire Rd at Quaker Rd	Landing Zone	Dorchester	3501	Rotary	33.129269	-80.63545
New Grace Church Maple Branch Independent School	Landing Zone	Dorchester	3501	Rotary	33.158357	-80.67354
1528 St Mark Bowman Rd	Landing Zone	Dorchester	3502	Rotary	33.256686	-80.61129
Woodland HS	Landing Zone	Dorchester	3503	Rotary	33.166896	-80.491855
Summerville High Stadium	Landing Zone	Dorchester	3505	Rotary	33.008309	-80.181407
Randolph Trucking Co.	Landing Zone	Dorchester	3504	Rotary	33.106355	-80.307401
Orangeburg Rd. Hwy 17A	Landing Zone	Dorchester	3505	Rotary	33.989481	-80.224439
Andrews Municipal	Airport	Georgetown	4304	Fixed/Rotary	33.451389	-79.526667
Port of Georgetown	Terminal	Georgetown	4304	Seaport	33.35889	-79.28972
Georgetown County	Airport	Georgetown	4304	Fixed/Rotary	33.313056	-79.318333

**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

OPERATIONAL AREA TRANSPORTATION GROUND ROUTES						
Name	Function	State / County	Operational Area	Route	Latitude	Longitude
I-26 in Columbia to I-526 Mark Clark Express	Inspection Route	State	NA	I-26 to I-526	NA	NA
I-26	Inspection Route	State	N/A	I I-26 to I-95S then S to SC-61 to Mark Clark	N/A	N/A
US-52 E	Inspection Route	Charleston	N/A	US-52 E to Mark Clark Expressway	N/A	N/A
SC-527	Inspection Route	Charleston	N/A	SC-527S to SC-41 to US-17 AS to SC-45S to US-17S	N/A	N/A
I-26	Inspection Route	State	N/A	SC I-26 to I-95 to SC-64 E to US-17N (US-17A N if needed) to Mark Clark Expressway	N/A	N/A
SC 453 N	Alternate Inspection Route	Orangeburg County	N/A	SC 453 N to US 176 in Orangeburg Co. Continues on US 176 into Berkeley County to US-52 W to Summerville or Charleston	N/A	N/A
SC-61	Alternate Inspection Route	Colleton County	N/A	SC-61 from I-95 S in Colleton County, continue on SC-61 through Dorchester County into Charleston County to I-526	N/A	N/A
SC-527	Inspection Route	Charleston	N/A	SC-527S to SC-41 to US-17 AS to SC-45S to US-17S	N/A	N/A

**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

OPERATIONAL AREA TRANSPORTATION GROUND ROUTES						
Name	Function	State / County	Operational Area	Route	Latitude	Longitude
I-26	Inspection Route	State	N/A	SC I-26 to I-95 to SC-64 E to US-17N (US-17A N if needed) to Mark Clark Expressway	N/A	N/A
SC 453 N	Alternate Inspection Route	Orangeburg County	N/A	SC 453 N to US 176 in Orangeburg Co. Continues on US 176 into Berkeley County to US-52 W to Summerville or Charleston	N/A	N/A
SC-61	Alternate Inspection Route	Colleton County	N/A	SC-61 from I-95 S in Colleton County, continue on SC-61 through Dorchester County into Charleston County to I-526	N/A	N/A
I-26	Inspection Route	State	N/A	I I-26 to I-95S then S to SC-61 to Mark Clark	N/A	N/A
US-52 E	Inspection Route	Charleston	N/A	US-52 E to Mark Clark Expressway	N/A	N/A
US-17	Alternate Inspection Route	Beaufort County	N/A	In Beaufort County take US-17 from I-95 N left on S-7-48, onto S-7-21, to US-17 across Combahee River to Mark Clark Expressway	N/A	N/A
US-21	Alternate Inspection Route	Beaufort County	N/A	In Beaufort County take US 21N to US-17 N across Combahee River into Charleston County to Mark Clark	N/A	N/A

**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

OPERATIONAL AREA TRANSPORTATION GROUND ROUTES						
Name	Function	State / County	Operational Area	Route	Latitude	Longitude
SC-64	Alternate Inspection Route	Colleton County	N/A	Take SC 64 E from I-95 to US-17A onto S-15-21 onto SC 61 to Mark Clark Express	N/A	N/A
I-26	Alternate Inspection Route	Dorchester	N/A	I-26 E to SC453 to Harleyville to 178E to US-78 to Summerville	N/A	N/A
US-17N	Alternate Inspection Route	Berkeley County	N/A	US-17 N to US-52 to SC-402 to SC-41 S to I-526	N/A	N/A
I-26 E to I-95 S	Interstate	State	N/A	I-26 & I-95	N/A	N/A
I-20 E to I-95 S	Interstate	State	N/A	I-20 & I-95	N/A	N/A
I-526	Interstate	State	NA	I-26 Corridor	NA	NA
RAMP TO I-26EB FR I526EB	Ramp	State	NA	I-26 Corridor	NA	NA
SC 31-MARK CLARK EXPWY	Bridge	Charleston	N/A	I-26 Corridor	N/A	N/A
US 176E from Columbia to Charleston	Interstate	State	N/A	Parallel route to I-26	N/A	N/A
US 321 S from Columbia to US 78 E (Denmark) to St. George	Interstate	State	N/A	Parallel route to I-26	N/A	N/A
US 378 E to US 52 (Lake City) South to E 17A (Moncks Corner)	Interstate	State	N/A	Alternative routes	N/A	N/A
US 526 (Mark Clark Express) Charleston & Berkeley County	Interstate/ Bridge	Charleston/ Berkeley	N/A	Connects Charleston and Berkeley counties Crosses Cooper River	N/A	N/A
SC41 to Mark Clark Express	Interstate/Bridge	Berkeley	N/A	Berkeley County	N/A	N/A

OPERATIONAL AREA TRANSPORTATION GROUND ROUTES						
Name	Function	State / County	Operational Area	Route	Latitude	Longitude
US 17 to Mt. Pleasant at I-26 (MM 221) to SR 700 (St Johns Island) to Edisto Island N on SR 174 to US 17 to SR 165 to Summerville	Interstate	Charleston	N/A	Peninsula area, Johns Island, and James Island	N/A	N/A
US 78 W to US 21 N	Interstate	Dorchester	N/A	Alternative routes	N/A	N/A
Cooper River Bridge	Interstate	Charleston	N/A	Cooper River/I-526 in North Charleston	N/A	N/A
Ashley River Bridge	Bridge	Charleston	N/A	Ashley River	N/A	N/A
Stono River Bridge	Bridge	Charleston	N/A	James Island to Johns Island SC 700, 5.0 MI SW CHARLESTON	N/A	N/A
Stono River Bridge (John P. Limehouse)	Bridge	Charleston	N/A	Johns Island, 9.5 MI W CHAS	N/A	N/A
Sand Creek Bridge on Hwy 174	Bridge	Charleston	N/A	Edisto Island	N/A	N/A
JAMES ISLAND CREEK	Bridge	Charleston	N/A		N/A	N/A
Hwy 45 Bridge between Lake Marion and Lake Moultrie	Bridge	Berkeley	N/A	Diversion Canal	N/A	N/A
Hwy 45, 5.0 MI-NW-ST.STEPHENS	Bridge	Berkley	N/A	Rediversion Canal	N/A	N/A
Tail Race Canal Bridge	Bridge	Berkeley	N/A	If damaged will split county in half. 1 mile N of Moncks Corner.	N/A	N/A
Hwy 52 Bridge, 16.3 MI-NE-MONCKS CORNER	Bridge	Berkeley	N/A	Santee River	N/A	N/A
Hwy 45/17A Bridge to Jamestown	Bridge	Berkeley	N/A	Crosses Santee River	N/A	N/A

Attachment C to Annex 1 (ESF-1)  
Operational Area Reconnaissance List

OPERATIONAL AREA TRANSPORTATION GROUND ROUTES						
Name	Function	State / County	Operational Area	Route	Latitude	Longitude
Hwy 41 Bridge	Bridge	Berkeley	N/A	Wando River	N/A	N/A
SR 44, Seaboard Coast Line RR	RR Bridge	Berkeley	N/A	Crosses Santee Cooper East	N/A	N/A
Cypress Bridge	Bridge	Dorchester	N/A	Great Cypress Swamp, 6.9 MI NW SUMMERVILLE	N/A	N/A
Indian Field	Bridge	Dorchester	N/A	3.8 MI NE ST GEORGE	N/A	N/A
Four Hole Swamp	Bridge	Dorchester	N/A		N/A	N/A
Popperdam Creek	Bridge	Dorchester	N/A	In/near N. Charleston	N/A	N/A
Sawmill Creek	Bridge	Dorchester	N/A	2.5 MI SW SUMMERVILLE	N/A	N/A
Tributary to Ashley River	Bridge	Dorchester	N/A	09.5 MI SW SUMMERVILLE	N/A	N/A

OPERATIONAL AREA TRANSPORTATION CRITICAL FACILITIES						
Name	Function	County / State	Operational Area	Location	Latitude	Longitude
Roper Hospital, Inc.	Hospital	Charleston	1907	N. Charleston	32.8408900	-79.9727400
Specialty Hospital of South Carolina	Hospital	Charleston	1907	Charleston	32.7823200	-79.9479600



**Attachment C to Annex 1 (ESF-1)**  
**Operational Area Reconnaissance List**

Trident Medical Center	Hospital	Charleston	1908	Charleston	32.9781000	-80.0772000
Palmetto Lowcountry Behavioral	Hospital	Charleston	1908	Charleston	32.8407200	-79.9738200
Roper Hospital North, Inc.	Hospital	Charleston	1907	Charleston	32.7823800	-79.9498800
Bon Secours - St. Francis Xavier	Hospital	Charleston	1907	Charleston	32.8074600	-80.0416300
Charleston Memorial Hospital	Hospital	Charleston	1907	Charleston	32.7824900	-79.9498400
Citadel Infirmary, The	Hospital	Charleston	1907	Charleston	32.7951700	-79.9618200
East Cooper Regional Medical Center	Hospital	Charleston	1902	Mt. Pleasant	32.8151000	-79.8562500
Healthsouth Rehabilitation Hospital	Hospital	Charleston		North Charleston	32.9762300	-80.0702300
MUSC Medical Center	Hospital	Charleston	1907	Charleston	32.7852700	-79.9484900
Veterans Affairs Med Center	Hospital	Charleston		Charleston	32.7792000	-79.9376000
Summerville Medical Center	Hospital	Charleston	3506	ville	32.9651100	-80.1578400
Pinopolis	Dam	Berkeley	1501	Moncks Corner	33.24524 N	-79.99209 W
N. Santee	Dam	Clarendon	TBD	Eadytown	33.49210 N	-80.17728 W
Clearwater Lake	Dam	Aiken	TBD	Clearwater	33.5027	-81.89274
Lake Murray	Dam	Lexington	TBD	Irmo	34.05290	-81.21841W
MacDougall Correctional Inst.	Prison	Berkeley	1501		33°10'06 N	80°17'43W
Lieber Correctional Inst.	Prison	Dorchester	3504		33°05'09N	80°17'41W
Coastal Work Center	Prison	Charleston			35°41'00N	80°01'50'43 W

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## **ANNEX 2 (ESF-2)**

### **COMMUNICATIONS**

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**PRIMARY:** Budget and Control Board (B&CB), Division of the State Chief Information Officer (CIO)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this annex, are assigned additional hazard specific responsibilities for earthquake response.

SC Office of the Adjutant General, Military Department (OTAG)

#### **I. INTRODUCTION**

- A. The state's communication system is comprised of personnel, facilities, equipment, and procedures necessary to effectively link various facilities within the overall statewide emergency management systems. The communication systems used to link these facilities will consist of radio and telephone systems in current use, additional equipment brought in to supplement existing capabilities, and additional communications support provided by radio amateur services. However, a catastrophic earthquake similar to the 1886 event will cause most communication systems in the state to be inoperable.
- B. ESF-2 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

#### **II. MISSION**

To provide a means to support communications through coordination with appropriate federal, state, and local agencies and organizations to minimize loss of life and property in the event of an earthquake disaster.

#### **III. CONCEPT OF OPERATIONS**

- A. Hazard analysis indicates a catastrophic earthquake will disrupt commercial communication services to and within the Operational Areas. The use of normal communication systems should be attempted, but in a catastrophic situation, satellite radio and satellite telephone may be required to provide the initial means of communications from the SEOC to local emergency management offices and other critical facilities. Other communications support services such as state government radio systems, Radio Amateur Civil Emergency Services (RACES), and CAP will become available as resources and conditions permit.

- B. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- C. SERT will implement the Operational Area Communications Plan and deploy the Operational Area Communications Teams according to the deployment response for an earthquake. The response can be found in Attachment A to this Annex. The Operational Area Communications Plan can be found in the Catastrophic Incident Response Plan, which is Appendix 9 to the SCEOP. However due to the uniqueness of an earthquake response, a specific deployment response is prepared and is Attachment B to this Annex.
- D. ESF-2 functions include but are not limited to:
  - 1. Activating communications systems between the SEOC and the county EOCs and other agencies as needed.
  - 2. Evaluate the need and deploy 800 MHz radios for Operational Area Communications Teams and others agencies as specified in ESF-2 SOP.
  - 3. ESF-2 will implement the State Frequency Management Plan to assign common calling frequencies. ESF-2 will test the frequencies identified for priority use to determine what is available before announcing the emergency frequency.

NOTE: ESF-2 will use the following approach as necessary should there be problems with radio systems or frequency utilization:

- a. Telephone Network: There are currently 200 Government Emergency Telephone Services (GETs) cards. These cards will be issued to selected SERT members to allow priority SEOC calls. SCEMD will activate the State-National Advance Warning System (NAWAS) and EAS to communicate with the public and local governments.
- b. Amateur Radio: RACES has identified members within each Operational Area. The RACES team will attempt to contact county EOCs using calling frequencies identified in the State Frequency Management Plan. If unable to

communicate with the EOCs, the RACES team will attempt contact with other RACES stations within the Operational Area.

- c. CAP: CAP will deploy airborne repeaters to set up VHF/UHF/800 MHz communications for the regional area to relay information and restore limited communications. Operational Area Communication Teams: Teams will deploy with high frequency (HF) and satellite telephone and radio equipment to the affected county EOCs or to the command center in the Operational Areas. The team(s) will establish two-way communication with the SEOC.
  - d. Operational Area Communication Teams: Teams will deploy with high frequency (HF) and satellite telephone and radio equipment to the affected county EOCs or to the command center in the Operational Areas. The team(s) will establish two-way communication with the SEOC. See Operational Area Communications Plan, Appendix 9, State Catastrophic Incident Response Plan.
  - e. Mobile Communication Systems: The Emergency Communications Vehicle (ECV) will deploy as directed, and ESF-2 will deploy, portable communications towers, satellite communications trailer county mobile command posts with satellite communications capabilities as available and requested by the SEOC.
  - f. State Agency Communication Systems: State agencies, including Educational Television Network (SCETV), State Law Enforcement Division (SLED), SC Department of Natural Resources (SCDNR), SCEMD Local Government Radio (LGR), SC Department of Transportation (SCDOT), SC Forestry, State Department of Education (Bus transportation radio network) and), have Statewide systems available for use to augment communication systems.
4. Coordinate with ESF-1 to provide transportation requirements for communication teams and equipment.

#### **IV. ESF ACTIONS**

Operations necessary for the performance of this function include but are not limited to:

**A. Preparedness**

1. In coordination with SCEMD, annually review the communications deployment response procedures for an earthquake. See Attachment B.
2. Analyze the Loss Estimation Reports prepared by SCEMD for communication infrastructure damages by Operational Areas.
3. Exercise and test the communications deployment response for an earthquake.
4. Within the Operational Areas, identify and coordinate the assignment of RACES operators.
5. Prepare and coordinate with ESF-1 to provide transportation requirements for communication teams and equipment.
6. Identify and maintain a listing of potential communication shortfalls by Operational Area including sources, acquisition methods, and delivery timeline.

**B. Response**

1. Implement the ESF-2, Earthquake Checklist, Attachment A to this Annex.
2. Implement the Operational Area Communications Response procedures for an earthquake.
3. Implement State Frequency Management Plan and announce the activated frequencies.
4. Upon activation of Operational Area Communications Teams, coordinate the actions of the deployed teams.

**C. Recovery**

See SCEOP, Annex 2 (ESF-2), Section IV.C.

**D. Mitigation**

See SCEOP Annex 2, (ESF-2) Section IV.D.

**V. RESPONSIBILITIES**

**A. B&CB, CIO**

1. Analyze the Loss Estimation Reports prepared by SCEMD for communication infrastructure damages by Operational Area.
2. In coordination with SCEMD, review the Operational Area Communications Plan to include the deployment response procedures for an earthquake.
3. In conjunction with SCEMD, coordinate provisions of communications equipment and deployment of Operational Area Communication Teams.
4. Prepare and coordinate with ESF-1 to provide transportation requirements for communication teams and equipment.
5. Identify and maintain a listing of potential communication shortfalls by Operational Area.
6. Review and update as necessary the Earthquake Checklist for ESF-2.

**B. CAP**

Participate in reviewing the Operational Area Communications deployment response procedures for an earthquake.

**C. Radio Amateur Civil Emergency Services (RACES)**

1. Assist ESF-2 in reviewing the Operational Area Communications deployment response procedures for an earthquake.
2. Identify members and coordinate assignments for each Operational Area to support the earthquake response effort.
3. Ensure RACES equipment in the SEOC and counties is operable.

**D. SCEMD**

1. Participate in the review and update of the Operational Area Communications Plan to include deployment response procedures for an earthquake.

2. In coordination with CIO, coordinate provisions of communications equipment and deployment of Operational Area Communication Teams.

**E. OTAG**

1. Participate in the review and update of the Operational Area Communications Plan to include deployment response procedures for an earthquake.
2. In coordination with CIO, coordinate provisions of communications equipment and deployment of Operational Area Communication Teams.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-2, Communications, supports this Annex.

**VII. ATTACHMENT**

Attachment A	ESF-2 Earthquake Checklist
Attachment B	Operational Area Communications Plan for an Earthquake Response



**ESF-2 (Communications)**

Date/Time complete

1. \* \_\_\_\_\_ Implement the Operational Area Communications Deployment procedures for an Earthquake.
2. \* \_\_\_\_\_ Determine operability of telephone and radio networks, cell systems, local government radios, 800 Mhz systems, and phone systems of State agencies in the Operational Areas.
3. \* \_\_\_\_\_ Complete communication checklists to determine status of communications systems.
4. \* \_\_\_\_\_ Implement and activate the State Frequency Management Plan.
5. \* \_\_\_\_\_ Establish radio frequencies to be used by SERT and county emergency managers.
6. \* \_\_\_\_\_ Establish communications contact with RACES members and support agencies for mobilization and deployment as Operational Area Communications B-Team.
7. \_\_\_\_\_ Test RF/TELCOM/DATA communications.
8. \_\_\_\_\_ Request ESFs to complete and submit ICS 205 to ESF-2.
9. \_\_\_\_\_ Support / coordinate operational area communications teams deployments and monitor activities.
10. \_\_\_\_\_ Identify and obtain additional communications equipment for use.
11. \_\_\_\_\_ Assign available communications equipment to response agencies.
12. \_\_\_\_\_ Validate and initiate resource requests from EMAC or federal government for additional satellite phones and 800 Mhz radios.
13. \_\_\_\_\_ Provide ESF-1 transportation requirements into the area.
14. \_\_\_\_\_ Establish contact and coordinate with the commercial telephone companies to install emergency communication systems to provide telephone services at the SEOC and designated locations affected by the earthquake.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

**I. CONCEPT OF OPERATIONS**

1. The scenario earthquake used in this Plan is forecast as a possible worst case. It is a magnitude 7.3 earthquake, similar to the 1886 Summerville/Charleston earthquake that impacted the entire State. This earthquake remains the most severe earthquake to occur in South Carolina. A magnitude 7.3-earthquake occurring at the epicenter of the Charleston 1886 earthquake would affect the entire State, with most of the destruction and damage occurring within Berkeley, Charleston, and Dorchester Counties. This communication deployment will focus on deploying communication teams to Berkeley, Charleston, and Dorchester counties operational areas due to the probability of receiving the most damage from the catastrophic event.
2. SC Emergency Management Division (SCEMD) uses the Operational Area Concept to prepare for disaster response. The operational areas concept allows the counties and SCEMD to provide a focused response to a disaster, allows pre-impact planning for amounts and types of resources, and allow better command and control of county during emergency operations. Most operational areas will initially only be accessible by air or sea. Currently there are 21 Operational Areas identified in Charleston, Dorchester, and Berkeley counties. The optimal planning is to provide three communications teams to each operational area requiring a total of 63 teams. The team make-up can range from two to four persons requiring a maximum total of 252 persons (4 persons per team). However, for the first 12-24 hours post-disaster only three teams will be available with one team being assigned to each county EOC. See Figure 1, Response Structure.
- C. An earthquake response requires communication to be established immediately for lifesaving requirements. The teams will follow the Standard Operating Procedures (SOP) as described under separate cover; however, due to the urgency of the situation, the teams will self-deploy after any strong earthquake ( $M > 6.0$ ) affecting the State.

**II. RESPONSE LEVELS**

There are three response levels: Level A, B, and C. The three response levels will ensure that a redundant communication operation will occur.

- A. Level A is the initial response and represents the state's most rapid response capability.
  1. Level A-1 Team will deploy within four (4) to six (6) hours of notification.

2. Level A-2 response will deploy within six (6) to twelve (12) hours upon notification.
- B. The Level B response will consist of B-Team members and deployment is within 24 to 48 hours after notification.
- C. The Level C response will consist of the CST and JISCC from the SCNG and SCARNG. Deployment is within 48-72 hours after notification.
- D. The coordinating instructions, transportation, support, and reporting requirements for the Operational Area Communications Teams are maintained in the SOP which can be found in the Catastrophic Response Plan.

### **III. ORGANIZATION AND DEPLOYMENT**

#### **A. A- Teams**

1. A-1 Teams: One communication team will be deployed to each Berkeley, Charleston, and Dorchester Emergency Operations Center (EOC) for a total of three teams. Each team will have two (2) members of the SC Emergency Management Division (SCEMD) Regional Emergency Manager (REM) and two (2) members of State Operational Area Liaison Team (SOALT) for a total of four (4) persons. Civil Support Team (CST) from the SC National Guard (SCNG) and SC Air National Guard (SCANG) may also be available to deploy with A-1 Teams.
  - a) Deployment: Within four (4) hours after notification and on scene within six (6) hours.
  - b) Operational: Immediately.
  - c) Function: To provide point-to-point communication from county EOC to SEOC and to evaluate area's communication status and capabilities.
  - d) Equipment: Two (2) Iridium SAT Telephones, two (2) SAT Transportable radios/telephone, two (2) 800 MHz Portables, and two (2) cell phones along w/applicable battery packages. The REMs assigned equipment will be used as back up.

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Operational Area Communications Plans for Earthquake Response

2. **A-2 Teams:** Upon assessment by A-1 Teams and county director's up to eighteen (18) teams could be deployed to locations in the operational areas to provide point-to-point communication. The team members would be made up with REMs, SOALT members, other state employees, and if available, SCNG Tactical Satellite (SCTAC) teams and CST.

- a) Deployment: Within 6 to 12 hours after notification.
- b) Operational: Immediately.
- c) Function: To provide point -to-point communication and to serve as back-up communication to A-1 Teams. Based on A-1 Teams and county director's evaluation, A-2 Teams assignment locations will be accordingly to communication priorities established by county director and SERT Executive group. A-2 Teams could be assigned to alternates EOCs, transportation entry points, staging areas, Incident Command Posts (ICP), and critical facilities in the operational areas.
- d) Equipment: Each A-Team will be provided with two (2) Iridium SAT Telephones, two (2) SAT Transportable radios/telephone, two (2) 800 MHz Portables, and two (2) cell phones along w/applicable battery packages. The REMs assigned equipment will be used as back up.

- B. **B-Teams:** Up to 21 teams consisting of two (2) or three (3) persons representing SCNG Tactical Satellite (SCTAC) teams, volunteer organizations, CST, Joint Incident Site Communications Center (JISCC), and EMAC contracts. The teams will deploy to locations in the operational areas as assigned by SERT to provide point-to-point communication. These locations could be transportation entry points, Incident Command Posts (ICP), and Logistical Staging Areas (LSA) in the operational areas.

- 1. Deployment: Within 24 to 48 hours after notification.
- 2. Operational: Within three (3) hours.
- 3. Function: Level B Teams provide communication from locations assigned by SERT in the operational areas. Level B teams will provide a second level of redundancy and may or may not be co-located with Level A teams but could relay information to Level A teams, if necessary. However, Level B teams must maintain the

capability to communicate outside of the operational area should the Level A capability diminished.

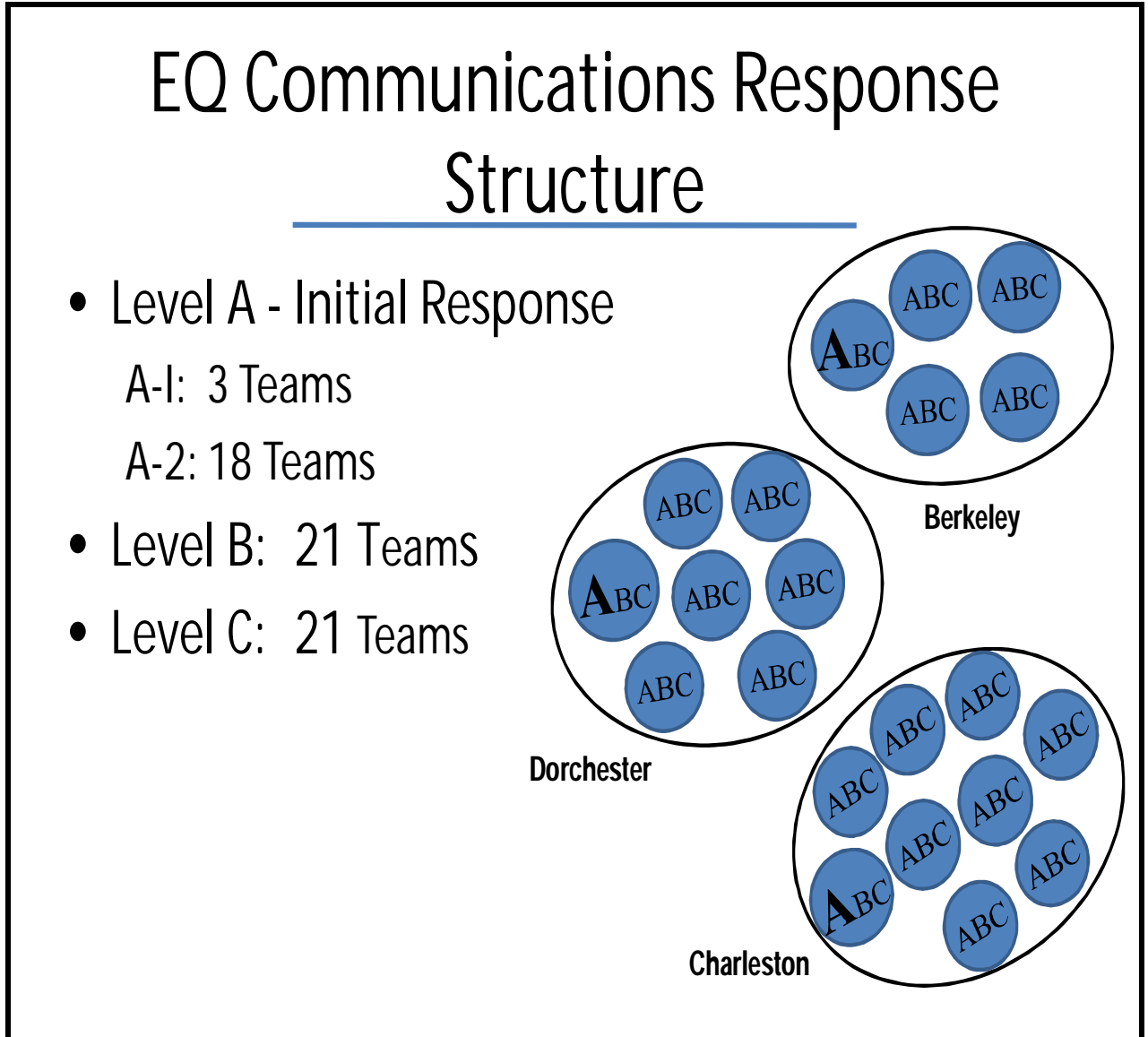
4. Equipment:

- a) Primary: Satellite radio/telephone.
- b) Secondary: High Frequency (HF), 800 MHz, and Ultra High Frequency (UHF) and Very High Frequency (VHF) radios.
- c) SCTACSAT will be supported with AN/PSC-5 Spitfire. It is an UHF band from 22.50 megahertz (MHZ) to 399.995 MHz. This provides narrow band voice, 5-kilohertz (kHz) and 25-kHz (wideband) operation.

C. **C-Teams:** Up to twenty-one teams from JISCC and CST from the SC National Guard (SCNG) and SC Air National Guard (SCANG) will deploy to the assigned locations in the operational areas. These locations could be the transportation entry points, Incident Command Post (ICP), Logistical Staging Areas (LSA), and/or critical facilities in the operational areas.

- a) Deployment: Within 48 to 72 hours after notification.
- b) Operational: Within twenty-four (24) hours.
- c) Function: Level C Teams provide point-to-point communication from locations in the operational areas as assigned by SERT. Level C teams will provide a third level of redundancy and may or may not be co-located with Level A-1 and A-2 or B teams but will relay information to the SEOC from assigned locations. Level C teams should have the capabilities to support an operation longer than five days as required by SERT. The teams must maintain the capability to communicate outside of the operational area should the Level A or B capability be diminished.
- d) Equipment: Maintained under separate cover.

Figure 1



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**ANNEX 3 (ESF-3)**  
**PUBLIC WORKS AND ENGINEERING**

---

**PRIMARY:** B&CB, Division of Procurement Services, Materials Management Office (MMO)

**SUPPORT:** As directed within the SCEOP, each supporting agency and organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this Annex, are assigned additional hazard-specific responsibilities for earthquake response.

SCDHEC, Office of Environmental Quality Control; US Army Corps of Engineers

**I. INTRODUCTION**

- A. There are over 1.5 million buildings in the state, and current loss estimates show the state will suffer significant building damage from a strong earthquake. In a magnitude 7.3 earthquake scenario, approximately 179,000 buildings, or over 12% of the total number of buildings in the state, will be at least moderately damaged. This type of damage will require safety inspection before reuse.
- B. A magnitude 7.3 earthquake will generate more than 36 million tons of debris in the disaster areas, including concrete and steel materials that require special treatment in disposal. Debris assessments will either be provided by the SAT, local governments, and/or state agencies representatives. If requested by the SERT, ESF-3 will coordinate debris management with local and federal government representatives and other support agencies to remove debris.
- C. ESF-3 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

- A. To establish policies, procedures, and restoration of transportation infrastructure, water resources, management, emergency contracting, and expertise following an earthquake disaster.
- B. To provide an accurate assessment of damages to determine the need for State and/or federal assistance, and to conduct safety evaluations to protect the public health and welfare.

### III. CONCEPT OF OPERATIONS

#### A. Damage Assessment

1. Initial requests for engineering services for post-disaster inspection and/or evaluation will be made to the SERT from the county emergency manager and, if necessary, state agencies with facilities within the affected areas. Decisions about responses to requests for engineering services will be coordinated as established by the response priorities.
2. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
3. The local building official is responsible for declaring buildings within the jurisdiction to be safe for occupancy. State facilities are within the jurisdiction of the Office of State Engineer. The federal authority having jurisdiction shall inspect federal facilities. ESF-3, B&CB, Office of State Engineer, will support local building officials in inspecting and evaluating critical facilities with state-licensed building inspectors and/or engineers.
4. Due to the limited number of licensed building inspectors and state-employed engineers, the State Engineer's Office will request additional support from licensed volunteer engineering groups and private contractors. These groups will make up the Post-Disaster Inspection Team under the auspices of the ESF-3, B&CB, Office of State Engineer. Structural Engineers from FEMA will also be requested to provide support to the Post-Disaster Inspection Team. See Attachment B to this Annex more information on the Post-Disaster Inspection Team.
5. A Post-Disaster Inspection Plan will be used in the Operational Areas. The Plan includes information on the following:
  - a. Criteria for selecting earthquake shelter facilities.
  - b. Timeline to provide engineering support in the Operational Areas.
  - c. Supporting personnel.

- d. Operating procedures for personnel.
  - e. Training requirements of personnel.
  - f. Operational Area assignments.
  - g. Equipment and personnel shortfalls, including sources and delivery timeline.
6. Post-Disaster Inspection Team inspection priority is facilities that could serve as shelters and then to other critical facilities as requested by SERT Executive Group.
- B. Special Procedures for Volunteer Engineers
- 1. After confirmation of a damaging earthquake, ESF-3 will contact professional engineering volunteer groups. The volunteer group leader will contact members outside the affected area to determine the status of registered volunteer workers and their availability for deployment to the affected area. This information, along with any special request, will be relayed to an ESF-3 representative in the SEOC.
  - 2. All requirements for engineers working under the auspices of the SERT will be coordinated through ESF-3. No engineers will be deployed into the areas without appropriate coordination by ESF-3.
  - 3. Professional volunteer engineers in the field who require the assistance or other types of engineers (electrical, mechanical, civil, etc.) will request this support through the SERT.
- C. ESF-3 will also:
- 1. Coordinate debris removal with SERT.
  - 2. Coordinate with water and sewage treatment facilities in all matters concerning water supply and sewage treatment and disposal. If additional resources are needed, SCDHEC will coordinate through private contracts and through the SERT for FEMA and EMAC support.
  - 3. Identify private sector contractors, which may be required to provide potable water, supplies, or equipment in support of the earthquake response efforts. Identify points of contact (POC), methods of operations, and access procedures that will allow for rapid response to those requirements.

4. Coordinate with ESF-7 on ice and water requirements, and develop a strategy to distribute water and ice in the Operational Areas. ESF-3 will coordinate with ESF-19 to assist initially with providing water in the Operational Areas.
5. Coordinate with US Army Corps of Engineers as requested to provide engineering support as well as ice, water, housing, debris removal, transportation, generators, and showers.
7. Coordinate transportation requirements with ESF-1.

#### IV. ESF ACTIONS

The emergency operations necessary for the performance of the Public Works and Engineering Services function include but are not limited to:

##### A. Preparedness

1. Prepare a Post-Disaster Inspection Plan. See III.A.4. This Plan will include:
  - a. Criteria for selecting earthquake shelter facilities.
  - b. Timeline to provide the engineering support in the Operational Areas.
  - c. Supporting personnel.
  - d. Operating procedures for personnel.
  - e. Training requirements of personnel.
  - f. Operational Area assignments.
  - g. Equipment and personnel shortfalls including sources and delivery timeline.
2. Prepare a plan for distribution of ice and water in the Operational Areas.
3. Conduct training, and develop SOPs for Post-Disaster Inspection Team(s).
4. Coordinate with the professional engineering organizations in the recruitment, registration, orientation, and training of volunteer structural and civil engineers.

5. Prepare and coordinate with ESF-1 to provide transportation requirements for Post-Disaster Inspection Teams and equipment.
6. Participate in drills to exercise the Post-Disaster Inspection Team, and ensure members are annually trained and certified.
7. Analyze the Loss Estimation Reports prepared by SCEMD on damaged buildings.
8. Plan and prepare for the impact on the water supply, and develop strategies to provide water in the Operational Areas.
9. Plan and prepare for the impact on the wastewater and sewage treatment and disposal systems, and develop strategies for wastewater and sewage treatments restoration.
10. Coordinate with US Army Corps of Engineers to provide resources following the disaster.
11. Identify resource shortfalls and prepare documentation to request additional resources.

B. Response

1. Implement the ESF-3, Earthquake Checklist, Attachment A to this Annex.
2. Implement the Post-Disaster Inspection Plan.
3. Establish engineering priorities, and coordinate those priorities with SERT.
4. Activate and deploy the Post-Disaster Inspection Team(s).
5. Provide for debris clearance.
6. Validate resource shortfalls, and obtain necessary resources.
7. Implement a plan for distribution of ice and water.

C. Recovery

See Recovery Section, Annex 3, (ESF-3) to the SCEOP.

**D. Mitigation**

Encourage structural and non-structural hazard mitigation plans throughout the State. These include but are not limited to:

1. Inventory and classify all critical facilities.
2. Assess relative risk to public safety of each class of structure, encouraging the approval of building ordinances to mitigate the threats.
3. Identify and recommend the most cost-effective ways to eliminate the non-structural threats.

**V. RESPONSIBILITIES**

**A. B&CB, Office of State Engineer**

1. Prepare a Post-Disaster Inspection Plan. See Section III.A.4. above.
2. Conduct training and develop SOPs for Post-Disaster Inspection Team (s).
3. Coordinate with the professional engineering organizations in the recruitment, registration, orientation, and training of volunteer structural and civil engineers.
4. Prepare and coordinate with ESF-1 to provide transportation requirements for Post-Disaster Inspection Teams and equipment.
5. Participate in drills to exercise the Post-Disaster Inspection Team, and ensure members are annually trained and certified.
6. Analyze the Loss Estimation Reports prepared by SCEMD on damaged buildings.
7. Review and update as necessary the Earthquake Checklist for ESF-3.

**B. SCDHEC, Office of Environmental Quality Control**

1. Identify and maintain a listing of potential shortfalls by Operational Area.

2. Identify private sector contractors, which may be required to provide potable water, supplies, or equipment in support of the earthquake response efforts. Identify POC, methods of operations, and access procedures that will allow for rapid response to those requirements.
3. Analyze the Loss Estimation Reports prepared by SCEMD on potential debris from the event.
4. Prepare and coordinate with ESF-1 to provide transportation requirements for public works supplies and equipment.
5. Plan and prepare for the impact on the water, and develop strategies to provide water in the Operational Areas.
6. Plan and prepare for the impact on the wastewater and sewage treatment and disposal systems, and develop strategies for wastewater and sewage treatments restoration.

C. US Army Corps of Engineers

1. Continue to update debris removal policies to assist local governments as required.
2. Develop resource packages for potable water, ice, and equipment in support of the earthquake response.
3. Identify agencies and organizations that could provide additional resources in support of the earthquake response efforts.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-3, Public Works and Engineering, supports this Annex.

**VII. ATTACHMENT:**

Attachment A	ESF-3 Earthquake Checklist
Attachment B	Post-Disaster Inspection Team

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**ESF-3 (Public Works and Engineering)**

Date/Time complete

1.     \* \_\_\_\_\_     Implement Post-Disaster Inspection Plan.
2.     \* \_\_\_\_\_     Activate, mobilize, and deploy Post-Disaster Inspection Teams as requested.
3.     \* \_\_\_\_\_     Coordinate departure place, time, and transportation of the Post-Disaster Inspection Team.
4.     \* \_\_\_\_\_     Request Corps of Engineers structural engineers and Surface Towed Ordnance Location System (STOLS).
5.     \* \_\_\_\_\_     Provide for emergency debris removal for passage of emergency vehicles.
6.     \_\_\_\_\_     Validate plans for alternate water sources, and coordinate with ESF-7 and ESF-15.
7.     \_\_\_\_\_     Prepare reports of water/sewer system failures.
8.     \_\_\_\_\_     Provide ESF-1 transportation requirements into the area.
9.     \_\_\_\_\_     COE to coordinate resources to use in disaster response. Allocate resources according to established priorities.
10.    \_\_\_\_\_     Coordinate with ESF-6 for Post-Disaster Inspection Team to evaluate facilities for shelters.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**I. Purpose**

To inspect and evaluate structures to use as shelters, as well as inspect and assess critical facilities as designated by SERT Operations Group for structural integrity.

**II. Organization**

- A. Teams will be composed of structural and civil engineers and licensed building inspectors from State, volunteer engineer groups, and, if necessary, federal personnel working under the auspices of the B&CB, Office of State Engineer.
- B. After coordination with ESF-3, the team will deploy using ground transportation and, if available, aerial assets. The teams will meet with the local building official(s) to discuss the priority of buildings to be inspected. If the local building official is available, he or she will accompany the team during the inspection and evaluation of facilities.
- C. Each team will have a team leader who will be responsible for assignment, situation and follow-up reports to the ESF-3 POC and the local building official.
- D. Priority will be given to structural assessment of pre-identified ARC shelter facilities, and then other critical facilities as prioritized by SERT Operations Group.
- E. After a facility has been assessed, the team will post a placard identifying the building and its date and time of assessment, and provide a report to the local building official.
- F. The local building official will declare buildings within the jurisdiction to be safe for occupancy.

**III. Coordinating Instructions**

- A. Transportation: Teams will assemble at the SEOC for deployment. An ESF-3 representative will coordinate the departure time and date.
- B. Lodging: If overnight lodging is required, the teams will coordinate before departure with its ESF-3 representative on lodging availability and reimbursement procedures.
- C. Communications: Teams will be provided with a cellular telephone to communicate and, if available, satellite telephone.

- D. Reporting Requirements: In coordination with SCEMD, the teams will develop a standardized report form to use. Teams will report daily (no later than 7:00 a.m.) to ESF-3 the usability of facilities to serve as earthquake shelters. ESF-3 will provide the report to the SERT Operations Group for further analysis and decision-making.

## **ANNEX 4 (ESF-4)**

### **FIREFIGHTING**

---

**PRIMARY:** Department of Labor, Licensing, and Regulation (LLR), Division of Fire and Life Safety (Structural Fires)

SC Forestry Commission (SCFC) (Wildland Fires)

**SUPPORT:** As directed within the SCEOP, each supporting agency and organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

#### **I. INTRODUCTION**

- A. In the event of a catastrophic earthquake, coordinating and planning at the state level is essential to support local governments for fire incidents. This coordination is particularly important under conditions where fire incidents will be widespread, occurring simultaneously, and when many of the same resources will or may be utilized for search and rescue of trapped persons and control/containment of HAZMAT.
- B. In the earthquake situation described within the loss estimation reports, it can be expected that fires will occur primarily due to ruptured gas lines and electrical shortages.
- C. ESF-4 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

#### **II. MISSION**

To coordinate and mobilize fire and emergency services resources, personnel and equipment; and to coordinate other state resources to support local governments and other states with these resources to detect and suppress urban, rural, and wildland fires following an earthquake disaster.

#### **III. CONCEPT OF OPERATIONS**

- A. It can be expected that fire mutual aid within the affected area may be sharply curtailed because of the earthquake. The widespread regional nature of the event will affect many jurisdictions simultaneously. Broken water supply pipelines, search and rescue incidents, communication services, and lack of mobility resulting from transportation network usage will hamper local fire response and assets available to respond.
- B. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in

the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.

- C. The SC Firefighter Mobilization Plan will be activated in conjunction with SEOC activation. Fire service units will self-mobilize to staging areas as outlined in the Firefighter Mobilization Plan. Currently, the SC Fire Academy and Columbia Metropolitan Airport are designated as staging areas for fire services. If other staging areas are needed, ESF-4, in coordination with ESF-9 will select locations.
- D. ESF-4 will:
  - 1. Integrate the Firefighter Mobilization Plan within the Operational Area Concept to include assigning a regional coordinator to serve as a liaison in the Operational Areas. This will also include:
    - a. Strategy to provide fire services assets to support the Operational Areas;
    - b. Supporting personnel to support ESF-1 Air Branch missions to assess damage to critical facilities, to include compacts with Southeastern Forest Fire and USDA Forest Service Southern Area Coordination Center (SACC);
    - c. Pre-packaged equipment to include type; and
    - d. Equipment and personnel shortfalls including sources and delivery timeline.
  - 2. Coordinate with ESF-1 to provide transportation requirements for communication teams and equipment.
  - 3. Identify alternative water sources in the Operational Areas. Water can be obtained from sources such as dry-hydrants, ponds, lakes, rivers, or the ocean.
  - 4. Coordinate communication requirements with ESF-2.
  - 5. Request to activate the Southeastern Forest Fire Compact and notify the USDA Forest Service SACC in Atlanta for mobilizing aerial resources (i.e., helicopters with buckets and air tankers) as well as Incident Management Teams (IMT).
  - 6. Coordinate with ESF-19 to support ESF-4 shortfalls if heavy-duty equipment is available.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of the fire protection mission, ESF-4 functions include but are not limited to:

##### **A. Preparedness**

1. Analyze the Loss Estimation Reports prepared by SCEMD on fire ignitions in the Operational Areas.
2. Integrate the Firefighter Mobilization Plan within the Operational Area Concept. See Section III.C.1.
3. Assign regional coordinator(s) to coordinate the fire service in the Operational Areas.
4. Determine procedures for ensuring effective radio communication with all responding fire service units.
5. Provide State and Regional Firefighter Mobilization Coordinators with the Operational Area Concept to include information on the potential number of fires for each Operational Area.
6. Prepare and coordinate with ESF-1 to provide transportation requirements for fire services equipment.
7. Identify resource shortfalls and prepare documentation to request additional resources.
8. Prepare and coordinate with ESF-19 to support ESF-4 shortfalls if equipment is available.
9. Activate and test communications systems in the Operational Areas.

##### **B. Response**

7. Implement the ESF-4, Earthquake Checklist. See Attachment A to this Annex.
8. Conduct area assessment for potential fire hazards in the area.
9. Implement the Firefighter Mobilization Plan for the Operational Areas.
10. Activate communication systems.

11. Request transportation support from ESF-1.
12. Coordinate with ESF-19 to provide heavy equipment to suppress wildfire.
13. Identify broken gas lines where wildfires are burning, and deploy aerial resources to suppress wildfires.
14. Utilize heavy equipment to assist in opening access routes by removing debris.
15. Coordinate with ESF-1 Air Branch and notify and mobilize SCFC pilots for aerial recon missions.
16. Activate SCFC LSA team, and stage them at the SCFC Columbia headquarters awaiting decision on LSA location.
17. Contact SCFC personnel in affected area to determine usability of communications and heavy equipment operation.
18. Activate LSA with IMT; work with ESF-7 to obtain items for operating the LSA, and have it operational within 24 hours.
19. Coordinate with Federal ESF 4 and SACC deploy IMT to run base camps or perform other incident management functions.

**C. Recovery**

See Recovery Section, Annex 4, (ESF-4) to the SCEOP.

**D. Mitigation**

See Mitigation Section Annex 4, (ESF-4) to the SCEOP.

**V. RESPONSIBILITIES**

**A. LLR, Division of Fire and Life Safety**

1. Analyze the Loss Estimation Reports prepared by SCEMD on fire ignitions in the Operational Areas.
2. Review and update as necessary the Earthquake Checklist for ESF-4.
3. Integrate the Firefighter Mobilization Plan within the Operational Area Concept. See III.C.1.
4. Assign regional coordinator(s) to coordinate the fire service in the Operational Areas.



5. Provide State and Regional Firefighter Mobilization Coordinators with the Operational Area Concept and the loss estimates for each Operational Area.
6. Determine procedures for ensuring effective radio communication with all responding fire service units.
7. Coordinate with ESF-2 on communications requirements for earthquake response.
8. Develop plans to transport resources by air and sea. Coordinate with ESF-1 to identify transportation requirements to support ESF-4.

**B. Forestry Commission**

1. Analyze the Loss Estimation Reports prepared by SCEMD on fire ignitions in Operational Areas.
2. Review and update as necessary the Earthquake Checklist for ESF-4.
3. Activate the Southeastern Forest Fire Compact and coordinate activities with the Southern Area Coordination Center (SACC) and the USFS as required.
4. Determine procedures for ensuring effective radio communication with all responding wildfire control units.
5. Coordinate with ESF-2 on communications requirements for earthquake response.
6. Develop plans to transport resources by air and sea. Coordinate with ESF-1 to identify transportation requirements to support ESF-4.
7. Develop plans to incorporate IMT teams into operational area planning.

**VI. FEDERAL INTERFACE**

The National Response (NRF) ESF-4, Firefighting, supports this Annex.

**VII. ATTACHMENTS**

Attachment A      ESF-4 Earthquake Checklist

**ESF-4 (Firefighting)**

Date/Time complete

1.     \*\_\_\_\_\_     Activate and test communications systems in the Operational Areas.
2.     \*\_\_\_\_\_     Activate SC Firefighter Mobilization Plan
3.     \_\_\_\_\_     In coordination with the Air Branch, notify SCFC pilots, and mobilizes SCFC aircraft for aerial recon missions.
4.     \_\_\_\_\_     Notify Southeastern Forest Fire Compact and the USDA Forest Service SACC in Atlanta for mobilizing aerial resources (i.e., helicopters with buckets and air tankers) as well as Incident Management Support Teams (IMSTs) for running base camps.
5.     \_\_\_\_\_     Notify SCNG for the availability of Blackhawks and/or Chinooks with Bambi buckets for wildfire suppression or for transportation of heavy equipment such as dozers and engines.
6.     \_\_\_\_\_     Activate SCFC LSA team, and stage them at the SCFC Columbia headquarters awaiting decision on LSA location.
7.     \_\_\_\_\_     Contact SCFC personnel in affected area to determine usability of communications and heavy equipment operation.
8.     \_\_\_\_\_     Identify broken gas lines where wildfires are burning, and deploy aerial resources to suppress wildfires.
9.     \_\_\_\_\_     Utilize heavy equipment to assist in opening access routes by removing debris.
10.    \_\_\_\_\_     Activate LSA with IMT; work with ESF-7 to obtain items for operating the LSA, and have it operational within 24 hours.
11.    \_\_\_\_\_     In coordination with Federal ESF 4 and SACC deploy IMTs to run base camps.
12.    \_\_\_\_\_     Provide ESF-1 transportation requirements into the area.
13.    \_\_\_\_\_     Keep abreast of current and forecast weather conditions for fire suppression.

**Attachment A to Annex 4 (ESF-4)**

**Earthquake Checklist**

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**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

**ANNEX 5 (ESF-5)**

**INFORMATION AND PLANNING**

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**PLEASE SEE ANNEX 5 (ESF-5) TO THE SCEOP  
FOR DUTIES AND RESPONSIBILITIES**

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**ESF-5 (Information & Planning)**

Date/Time complete

1.     \* \_\_\_\_\_     As necessary, prepare HAZUS run of the earthquake.  
NOTE: HAZUS run may take four days to complete.
2.     \* \_\_\_\_\_     **Inform SEOC Operations of the HAZUS scenarios  
available for review (M 7.3, M 6.3, and M 5.0) from the  
ESF-5 file.**
3.     \* \_\_\_\_\_     **Display maps or other graphic products (Operational  
Areas, transportation routes) as directed by the Chief of  
Operations.**

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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## **ANNEX 6 (ESF-6)**

### **MASS CARE**

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**PRIMARY:** SC Department of Social Services (SCDSS)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this annex, are assigned additional hazard specific responsibilities for earthquake response.

The American Red Cross (ARC), The Salvation Army (SA), Lieutenant Governor's Office on Aging

#### **I. INTRODUCTION**

- A. According to HAZUS Loss Estimation Reports, if a magnitude 7.3 earthquake occurs approximately 16,000 people from Berkeley, Charleston, Dorchester, Beaufort, and Colleton counties would seek short-term shelter (30 days or less).
- B. SCDSS is the primary State agency for ESF-6 that coordinates sheltering and feeding care for disaster victims.
- C. The ARC will manage ARC shelter operations as per the Memorandum of Understanding (MOU) located in the SCEOP.
- D. ESF-6 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

#### **II. MISSION**

To organize within state government the capability to meet basic human needs (shelter, food, clothing, inquiry, and emergency social services) in an earthquake disaster and to outline responsibility and policy established for Mass Care operations before, during, and after a disaster.

#### **III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.

B. ESF-6 functions include:

In coordination with local emergency managers and SCEMD, developing an Earthquake Shelter Strategy to shelter displaced citizens. It will reference and incorporate the following concepts:

1. Emergency Housing Procedures are outlined in Annex E of the SC Recovery Plan. Following a catastrophic event, emergency housing will be required as a result of large parts of the population being displaced from their homes for extended periods (over 30 days). Emergency housing consists of three (3) categories: 1) Transitional Housing, 2) Intermediate Housing, and 3) Long-Term Housing.
2. The National Shelter System (NSS) database or other databases as available to identify existing buildings and facilities to shelter within and outside the disaster areas. Confirmation that a listed facility remains intact will be coordinated with local government. Each identified facility will be evaluated and inspected by ESF-3 (or other entity as designated by SERT) for structural integrity before any sheltering will begin.
3. A neighborhood based sheltering list to identify facilities that are not on any database but involves larger numbers of smaller facilities chosen close to housing areas (churches, community centers, clubhouses). This will include coordinating with county emergency managers and local ARC chapters.
4. An earthquake shelter criterion to select facilities for Transitional Housing, Intermediate Housing, and Long-Term Housing.
5. The loss estimates of people requiring sheltering and meals per Operational Area.
6. Salvation Army (SA) Post-Impact Comfort Stations (PICS) to facilitate the provision of food, water, and if available, basic first aid 72-hours post-disaster. The locations to set up PICS will be determined post-disaster in coordination with local emergency managers and ESF-6 staff at the SEOC.

C. ESF-6 will use the following approaches for feeding in the Operational Areas:

1. MREs will be the food commodity available following the event and most likely will not be available until 72 hours after the event. ESF-6 will coordinate with ESF-11 to obtain Meals Ready to Eat

(MRE). As soon as possible, other food commodities will be made available. MREs may be air dropped or shipped to warehouses for distribution in Operational Areas.

2. Provide daily to ESF-11 the number of persons affected in order to assess the amount of food needed to meet the anticipated demand.
3. The ARC, SA, Southern Baptist Organization, and other supporting organizations will conduct food preparation and serving operations. These volunteer organizations will have mobile feeding units in the disaster areas once safe transportation routes are identified.
4. The SA has two airliftable kitchens that can be used and PICS to assist feeding displaced population.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

##### **A. Preparedness**

1. Prepare an Earthquake Shelter Strategy. See Section III.A.
2. Identify shortages and coordinate with Federal ESF-6 to determine what resources are available to support the State following the earthquake disaster.
3. Evaluate shortfalls including sources, acquisition methods, and delivery time line for each Operational Area.
4. Identify resources that can be transported by air and sea. Coordinate with ESF-1 to identify transportation requirements to support ESF-6.
5. Assist in the identification of affected elderly population in each Operational Area, to include persons with disabilities.

##### **B. Response**

1. Implement the ESF-6, Earthquake Phased Checklist. See Attachment A to this Annex.
2. Implement the Earthquake Shelter Concept. See section III.A.1.

4. Mobilize resources and supplies to respond in the post-earthquake environment.
5. Validate resource shortfalls and obtain necessary resources.
6. Coordinate with ESF-1 on mass care transportation requirements.
7. Provide mobile feeding resources.
8. Provide daily feeding requirements to ESF-11.
9. Conduct needs assessment of the elderly populations in each Operational Area.

C. Recovery

See SC Recovery Plan and the Recovery Section to Annex 6 (ESF-6) to the SCEOP.

D. Mitigation

See Recovery Section to Annex 6 (ESF-6) to the SCEOP.

V. **RESPONSIBILITIES**

A. SCDSS

1. In coordination with ARC, SA, and SCEMD, prepares an Earthquake Shelter Concept See paragraph III.A.
2. Coordinate with ARC to identify the South Carolina shelters on the NSS database and use HAZUS to determine which shelters are functional after the scenario earthquake and could be use as shelters.
3. In coordination with SCEMD and local ARC chapters, coordinate with county emergency managers to identify potential facilities for neighbor based sheltering and feeding within the Operational Areas.
4. Analyze the Loss Estimation Reports prepared by SCEMD on shelter and meal requirements in the Operational Areas.
5. Identify resources available to support earthquake operations in the Operational Areas.

6. Evaluate shortfalls including sources, acquisition methods, and delivery time line for each Operational Area.
7. Identify resources that can be transported by air and sea. Coordinate with ESF-1 to identify transportation requirements to support ESF-6.
8. Participate in earthquake exercises and training.
9. Review and update as necessary the Earthquake Checklist for ESF-6.

**B. ARC**

1. In coordination with DSS, prepare an Earthquake Shelter Strategy. See III.A.
2. Identify the South Carolina shelters on the NSS database and coordinate with SCEMD to use HAZUS to determine which facilities are useful for shelters after the scenario earthquake.
3. In coordination with SCEMD and DSS, coordinate with county emergency managers to identify potential facilities for neighbor based sheltering and feeding within the Operational Areas.
4. Analyze the Loss Estimation Reports prepared by SCEMD on shelter and meal requirements in the Operational Areas.
5. Identify shortages and coordinate with Federal ESF-6 to determine what resources are available to support the State following the earthquake.
6. Participate in earthquake exercises and training.

**C. SA**

1. Participate in the preparation of the Earthquake Shelter Strategy.
2. Identify capabilities and resources available for feeding isolated groups following an earthquake.
3. Participate in earthquake exercises and training.
4. Analyze the Loss Estimation Reports prepared by SCEMD on persons seeking shelter and meal requirements in the Operational Areas.

5. Develop a plan to deploy PICS, including a SA mobile kitchen unit canteen and offering temporary refuge. Initial services available include food and water; however additional resources can be incorporated within the scope of operations.

**D. SC Budget and Control, State Engineer's Office**

Develop criteria for facilities to be used as shelters. Coordinate with ARC on the NSS database to begin the identification and evaluation process of shelters.

**E. The Lieutenant Governor's Office on Aging**

1. Identify affected elderly population in each Operational Area, to include persons with disabilities.
2. Analyze the Loss Estimation Reports prepared by SCEMD on persons seeking shelter and meal requirements in the Operational Areas.
3. Identify resources available to support operations in the Operational Areas.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-6, Mass Care, supports this Annex.

**VII. ATTACHMENTS**

Attachment A      ESF-6 Earthquake Checklist

**ESF-6 (Mass Care)**

Date/Time complete

1.     \* \_\_\_\_\_ Coordinate with ESF-11 on food requirements to include determining the type of MREs needed.
2.     \* \_\_\_\_\_ Provide to ESF-1 requirements to transport MREs and other ESF-6 resources upon receipt.
3.     \* \_\_\_\_\_ Coordinate with ARC, SCNG, and SA to provide mobile feeding kitchens.
4.     \* \_\_\_\_\_ Implement Earthquake Shelter Strategy which includes but is not limited to:
  - The National Shelter System (NSS) database or other databases as available to identify existing buildings and facilities to shelter within and outside the disaster areas.
  - The identification of facilities within operational areas that could serve as shelters following an earthquake.
  - Coordination with ESF-3 to inspect non-damaged facilities identified within and outside of the affected areas to determine if they are structurally safe to shelter people.
5.     \_\_\_\_\_ Provide ESF-12 list of shelters needing immediate power.
6.     \_\_\_\_\_ Mobilize resources and supplies to respond in the post-earthquake environment.
7.     \_\_\_\_\_ Validate resource shortfalls and coordinate to obtain supplies.
8.     \_\_\_\_\_ Activate, mobilize, and deploy ARC and SCDSS staff for shelter operations.
9.     \_\_\_\_\_ On a daily basis, provide to ESF-11 the number of persons affected in order to assess the amount of food needed to meet the anticipated demand.
10.    \_\_\_\_\_ Assess the need to obtain food from PODs for shelters.

**Attachment A to Annex 6 (ESF-6)**

**Earthquake Checklist**

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**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.



## **ANNEX 7 (ESF-7) RESOURCE SUPPORT**

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**PRIMARY:** B&CB, Division of Procurement Services, Materials Management Office (MMO)

**SUPPORT:** As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

### **I. INTRODUCTION**

- A. In an earthquake scenario, nearly every routine resource channel, supply capability, and transportation system will be severely, if not totally, strained. Accordingly, providing resource support to the impacted area will be extremely challenging.
- B. This Annex considers resources and logistics activities necessary to protect lives and property through planning actions prior to the occurrence of a damaging earthquake and through effective use of statewide resources after the occurrence.
- C. ESF-7 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

### **II. MISSION**

Provide or coordinate the provision of services, equipment, and supplies to support expedient operations associated with an earthquake disaster; and for the approval and acquisition of equipment and supplies not available through normal purchasing channels and ordering time frames following an earthquake.

### **III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. In an earthquake scenario, nearly every routine resource channel, supply capability, and transportation system will be severely, if not totally, strained. Accordingly, providing resource support to the impacted area will be extremely challenging.

- C. The SC Logistical Operations Plan, Attachment A to the SC EOP will be implemented to ensure timely delivery of material and equipment into the disaster area but there may be several logistical staging areas established due to the isolation of Operational Areas. The SC Catastrophic Plan will also be implemented according to the need.
- D. The primary source of equipment, supplies, and personnel will be from state-owned and local resources. However, these resources will be severely strained in an earthquake situation. Accordingly, obtaining resources from outside sources such as FEMA, EMAC, and commercial organizations will be necessary.
- E. ESF-7 will coordinate with SEOC Logistics Cell to determine what resources may be available and if there is a need, the decision will be made on a case-by-case basis.
- F. The SC Logistical Plan, Attachment A to the SC EOP will be implemented to ensure timely delivery of material and equipment into the disaster area but there may be several logistical staging areas established due to the isolation of Operational Areas.
- G. In order to prepare for an effective disaster response, each ESF representative will provide to OTG and Logistics Cell a list of resource shortfalls. Resources anticipated to be needed immediately after the earthquake are food and bottled water, cots, blankets, fuel, and heavy equipment. A critical resource list is developed. See Basic Plan, Attachment C, Table 2.
- H. The Logistics Cell will coordinate with the transportation coordinator to develop strategies to transport goods and personnel to the operational area transportation entry points and onward to county established receiving points.
- I. Logistics Cell will coordinate with ESFs to determine shortfalls and provide the list to OTG to complete EMAC requests as needed.

#### IV. ESF ACTIONS

The emergency operations necessary for the performance of this function include but are not limited to:

- A. Preparedness
  - 1. Coordinate with ESFs to obtain resource shortfalls to include identifying the source, price, and a delivery timeline for the resource.

2. Coordinate with Logistics Cell to determine what resources may be available to include transportation.

**B. Response**

1. Implement ESF-7, Earthquake Checklist, Attachment A to this Annex.
2. Coordinate with ESFs to verify resource shortfalls and procure required items.
3. Coordinate with Logistics Cell to determine what resources may be available to include transportation.

**E. Recovery**

See Recovery Section, Annex 7, (ESF-7) to the SCEOP.

**F. Mitigation**

See Mitigation Section, Annex 7, (ESF-7) to the SCEOP.

**V. RESPONSIBILITIES**

B&CB, MMO

In coordination with ESFs obtain resource shortfalls and identify potential vendors to support shortfalls.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-7, Resource Support, supports this Annex.

**VII. ATTACHMENT**

Attachment A ESF-7 Earthquake Checklist

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**ESF-7 (Resource Support)**

Date/Time Complete

1.     \* \_\_\_\_\_ Determine availability of the following (at a minimum)  
              critical resource items from commercial vendors:
  - Ready Meal Packages and/or MREs
  - Tents, cots, blankets
  - Ice
  - Bottled water
  - Generators
  - Portable toilets
2.     \* \_\_\_\_\_ Activate vendor contracts for equipment and supplies
3.     \_\_\_\_\_ Coordinate with SCEMD on LSA needs.
4.     \_\_\_\_\_ Prepare for logistics management support at LSAs.
5.     \_\_\_\_\_ Coordinate with ESF-1 and ESF-16 on accessibility of  
              transportation routes in the impacted areas.
6.     \_\_\_\_\_ Coordinate with ESF-1 on status of accessibility into the  
              Operational Areas.
7.     \_\_\_\_\_ Provide ESF-1 transportation requirements into the area.
8.     \_\_\_\_\_ Provide logistic support as needed.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 8 (ESF-8)**  
**HEALTH AND MEDICAL SERVICES**

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**PRIMARY:** SC Department of Health and Environmental Control (DHEC)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this Annex, are assigned additional hazard specific responsibilities for earthquake response.

SC Department of Mental Health (SCDMH)

**I. INTRODUCTION**

- B. Medical and public health support will require support of private facilities, local, state, and federal agencies to treat casualties following a strong earthquake.
- C. The current planning estimated that all of the 12 medical facilities and two emergency care facilities that serve Berkeley, Charleston, and Dorchester counties could possibly experience severe damage from an M 7.3 earthquake event in the Charleston area. It is estimated that a daytime event would cause the highest number of casualties. Of the total estimated 20,000 casualties from a daytime event, approximately 70% will be injuries requiring medical attention, 24% will require hospitalization, and 6% will be fatalities in the Charleston, Berkeley, Dorchester, Beaufort, and Colleton counties.
- D. ESF-8 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**2. MISSION**

To ensure emergency provision of state's governmental resources for medical care; to facilitate and/or coordinate the provision of private resources for medical care for earthquake disaster victims; to supplement and support disrupted or overburdened local medical service personnel and facilities; and to perform deceased identification and mortuary services operations following an earthquake.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in

the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.

- B. The initial stage of the medical response will consist principally of:
1. Alerting hospitals and county health offices in unaffected areas of the state to request an inventory of available personnel, supplies, and equipment resources.
  2. Initiating requests for medical mutual aid through EMAC and FEMA.
  3. Determining the condition of medical facilities in the impacted areas. Afterwards, medical response will consist of treating victims by either augmenting local medical capabilities or evacuating victims.
- C. ESF-8 functions will include:
1. Analyzing the Loss Estimation Reports prepared by SCEMD for casualties by Operational Area.
  2. Exercising and training medical teams for a post-earthquake event. Based on HAZUS loss estimation, all of the 12 hospitals that serve Charleston, Dorchester, and Berkeley counties to include the two (2) emergency care facilities will be damaged and unable to provide extensive medical services to casualties.
  3. Identifying medical resources (public, private, and state agencies/organizations) that will be immediately available to support earthquake response.
  4. Incorporating all medical resources such as Strategic National Pharmaceutical Stockpile (SNPS) into earthquake planning and response.
  5. Preparing transportation requirements and coordinating with ESF-1.
  6. Identifying medical facilities throughout the state capable of a mass casualty response. ESF-8 will develop strategies to transport patients to health facilities outside of the disaster area. All transportation routes (land, sea, or air) will be considered to transport patients.



7. Preparing plans to integrate the NDMS into the state's disaster response. NDMS consists of the Disaster Medical Assistance Team (DMAT), the Disaster Mortuary Operational Response Team (DMORT), Medical Support Unit, and Mental Health and Stress Management teams.
  8. Utilizing non-traditional facilities such as hotels or containerized medical units to treat disaster victims in the Operational Areas.
  9. Coordinating with ESF-19 to provide additional care for disaster victims. The unit consists of physicians, nurses, paramedics, Emergency Medical Technicians (EMTs), Public Health Technicians, Bioenvironmental Technicians and Engineers, Dentists, and a Veterinarian Public Health Officer.
- D. Crisis counseling and psychological first aid will be needed following a strong earthquake. ESF-8 will immediately activate its plan for providing crisis counseling into the Operational Areas and other areas of the state as requested.
- E. Deceased Identification and Mortuary Services
1. The use of existing morgues and forensic personnel will be coordinated with ESF-8. ESF-8 will plan for a temporary morgue in each Operational Area.
  2. Resources for mortuary services will be coordinated with EMAC and the DMORT.
- F. Public Health and Sanitation
1. Food being donated and purchased will be inspected for possible contamination. ESF-8 will coordinate with ESF-11 to review embargo procedures for contaminated food.
  2. ESF-8 will coordinate with Federal ESF-8 to implement public health plans to mitigate the spread of diseases.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

**A. Preparedness**

1. Analyze the Loss Estimation prepared by SCEMD on medical facilities availability in the Operational Areas.
2. Identify medical resources (public, private, state, and federal) that will be immediately available to support earthquake response.
3. Coordinate with medical facilities statewide to determine capabilities for mass casualties.
4. Prepare and coordinate with ESF-1 to provide transportation requirements of medical teams and equipment.
5. Identify non-traditional facilities such as hotels or containerized medical units that could be used to treat injured persons in the Operational Areas.
6. Coordinate with representatives of NDMS for integration of its operational procedures into earthquake planning.
7. Assist county coroners to develop plans for morgues in the Operational Areas.
8. Develop a plan for acquisition or storage of an ample supply of body bags.
9. Identify and maintain a listing of potential medical resource shortfalls by Operational Area.
10. Maintain a list of federal assets that will aid ESF-8.
11. Develop plans to mitigate and control the spread of disease following an earthquake disaster to include integrating federal procedures.

**B. Response**

1. Implement ESF-7, Earthquake Checklist, Attachment A to this Annex.
2. Determine availability of medical personnel, supplies, and equipment throughout the state.
3. Coordinate and mobilize all professional and reserve medical personnel to assist in patient care.

4. Serve as state liaison with NDMS response personnel and coordinate NDMS assistance.
5. Determine condition and capacity of hospitals in the Operational Areas.
6. Activate mutual aid agreements following established protocols.
7. Determine if specialized equipment is needed for medical personnel operating in the Operational Areas.
8. Determine transportation needs and capabilities, and coordinate with ESF-1 to obtain transportation requirements to support ESF-8.
9. Coordinate with the county coroner on health-related problems associated with the disposition of fatalities.

**C. Recovery**

See Recovery Section, Annex 8, (ESF-8) to the SCEOP.

**D. Mitigation**

1. In coordination with the SC Hospital Association, develop or enhance procedures that address hospitals response plans that include patient evacuation, mutual aid agreements with neighboring hospitals, reliable back-up power, and other provisions.
2. In coordination with the SC Hospital Association, develop or enhance mitigation programs that include cost-effective measures to reduce the potential damages to structural and nonstructural infrastructures that are vulnerable to ground shaking.

**V. RESPONSIBILITIES**

**A. SCDHEC**

1. Analyze the Loss Estimation prepared by SCEMD on medical facilities availability in the Operational Areas.
2. Identify medical resources (public, private, state, and federal) that will be available to support earthquake planning.
3. Coordinate with medical facilities statewide to determine capabilities for mass casualties.

4. Prepare and coordinate with ESF-1 to provide transportation requirements of medical teams and equipment. Maintain a list of airfields in Operational Areas.
5. Identify non-traditional facilities such as hotels or containerized medical units that could be used to treat injured persons in the Operational Areas.
6. Coordinate with representatives of NDMS for integration of its operational procedures.
7. Maintain a list of hospitals that will serve as mass casualty treatment facilities
8. Assist county coroners to develop plans for morgues in the Operational Areas.
9. Identify and maintain a listing of medical resource shortfalls by Operational Area.
10. Develop plans to mitigate and control the spread of disease following an earthquake to include integrating federal procedures.
11. Review and update as necessary the Earthquake Checklist for ESF-8.

**B. SCDMH**

1. Develop plans to immediately provide crisis counselors to earthquake victims and responders in the Operational Areas.
2. Coordinate with ESF-1 to identify transportation requirements to support crisis counselors.

**VI. FEDERAL INTERFACE**

National Response Framework (NRF) ESF-8, Health and Medical Services, supports this Annex.

**V. ATTACHMENT**

Attachment A      Earthquake Checklist

**ESF-8 (Health and Medical Services)**

Date/Time Complete

1.     \* \_\_\_\_\_ Determine the condition of medical treatment site(s) to be used as triage area(s).
2.     \* \_\_\_\_\_ Review medical air transportation policies, and begin preparation to activate air transportation assets.
3.     \* \_\_\_\_\_ Determine availability of medical personnel, supplies, and equipment in the Operational Areas as well as unaffected areas.
4.     \* \_\_\_\_\_ Determine the condition and capacity of hospitals and other healthcare facilities within and outside of the Operational Areas.
5.     \* \_\_\_\_\_ Coordinate, mobilize, and deploy the MMRT and, if available, other medical teams within the State. Coordinate departure time.
6.     \* \_\_\_\_\_ Coordinate and mobilize all professional and reserved medical personnel to assist in patient care.
7.     \_\_\_\_\_ Provide volunteer medical personnel with information related to the disaster and the POC at the staging areas.
8.     \_\_\_\_\_ Request mutual aid as required through EMAC and FEMA.
9.     \_\_\_\_\_ Determine the condition of staging area(s) for medical response teams including the MMRT and NDMS.
10.    \_\_\_\_\_ Review inventory of pharmaceutical and medical supplies within the State and consider requesting the SNPS for support.
11.    \_\_\_\_\_ Allocate resources according to established priorities.
12.    \_\_\_\_\_ Determine if specialized equipment is needed for medical personnel operating in the Operational Areas.
13.    \_\_\_\_\_ Determine transportation needs and capabilities. Coordinate with ESF-1 to verify locations of primary transportation entry point for each Operational Area.
14.    \_\_\_\_\_ Provide ESF-1 transportation requirements into the area.

**Attachment A to Annex 8 (ESF-8)**

**Earthquake Checklist**

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15. \_\_\_\_\_ Coordinate with county coroner on health-related problems associated with the disposition of fatalities.
16. \_\_\_\_\_ Coordinate health-related activities among public and private response agencies and groups including, but not limited to, all activities relating to communicable disease control and protection from health effects of HAZMAT release.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

**ANNEX 9 (ESF-9)**  
**SEARCH AND RESCUE**

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**PRIMARY:** Department of Labor, Licensing and Regulation, (LLR) Division of Fire and Life Safety

**SUPPORT:** As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

**I. INTRODUCTION**

- A. It can be expected that search and rescue mutual aid within the affected areas may be sharply reduced. The widespread regional nature of the event will affect many jurisdictions simultaneously; therefore, search and rescue teams from throughout the state will be needed to provide search and rescue of persons trapped and injured due to collapsed buildings within the first 24 hours.
- B. ESF-9 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

To provide assistance to local authorities for search and rescue operations following an earthquake.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. The initial search and rescue response will be a local effort, with priorities set by local government. ESF-9 and ESF-4 will coordinate to provide additional search and rescue teams and equipment into the Operational Areas as requested.
- C. Due to the anticipated damage from a strong earthquake, the FEMA US&R task forces will be needed to support the state's search and rescue operations.

- D. ESF-9 will coordinate the search and rescue response based on the Operational Area Concept.
- E. The South Carolina US&R team (SCTF-1) will assist in search and rescue of disaster victims. It is a multi-disciplinary organization consisting of a search element, a medical element, a rescue element, a technical support element, and a command element. The team is self-sufficient for the first 72 hours of operations.
- F. Under normal disaster situations, SCTF-1 will deploy its team leader to the site staging area to prioritize needs. However, under the conditions expected with a major earthquake, the team leader will coordinate with the ESF-9 representative and local government for search and rescue priorities.
- G. Priorities will be determined at the Operational Area Incident Command Post (ICP). Area resources will be identified that could be applied to the situation.
- H. Equipment will be immediately mobilized and ready to deploy upon orders.
- I. The SC Fire Academy and Columbia Metropolitan Airport are designated staging areas for deployment of search and rescue teams. Other likely locations for staging search and rescue operations are military bases within the state.
- J. ESF-9 search and rescue response efforts will be accomplished by:
  - 1. Planning the search and rescue response based on the Operational Area Concept.
  - 2. Identifying transportation requirements to move personnel and equipment into Operational Areas. ESF-9 will consider using military resources and private and public watercraft.
  - 3. Coordinating with ESF-2 to support communications requirements of SCTF-1.
  - 4. Preparing for FEMA's US&R team to support search and rescue. FEMA US&R team(s) expected time of arrival is 48 hours after being notified. Upon arrival, FEMA US&R team(s) will coordinate with ESF-9 for mission assignments in the Operational Areas.



5. Integrating the SC Firefighter Mobilization Plan to support search and rescue efforts in the Operational Areas.
6. Identifying and maintaining a listing of shortfalls by Operational Area, and identify resources to support SCTF-1 and FEMA US&R teams.
7. Developing operational procedures, and maintaining informational maps based on the Operational Area Concept.
8. Coordinating plans to use search and rescue dogs in US&R operations.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

##### **A. Preparedness**

1. Coordinate and integrate the SC Firefighter Mobilization Plan into this Plan.
2. Coordinate and integrate SCTF-1 operational procedures with this Plan.
3. Prepare transportation requirements to move search and rescue equipment into Operational Areas.
4. Coordinate with ESF-2 to support SCTF-1 communications requirements.
5. Coordinate and integrate FEMA US&R teams into the state's search and rescue response to include identifying sites for US&R teams to stage based on Operational Areas.
6. Coordinate with SCEMD and the Federal DCO to identify military bases as potential staging areas and military equipment such as helicopters, landing crafts, landing ship tanks (LST), hovercrafts, etc. to transport rescue personnel and equipment.
7. Identify resources necessary to support SCTF-1 and FEMA US&R teams to include EMAC.

8. Develop operational procedures, and maintain maps to support earthquake search and rescue operations based on the Operational Area Concept.
9. Coordinate plans to use search and rescue dogs in US&R operations.

**B. Response**

1. Implement ESF-9, Earthquake d Checklist, Attachment A to this Annex.
2. Implement the SC Firefighter Mobilization Plan to assist in search and rescue efforts.
3. Activate SCTF-1 for search and rescue response.
4. Request FEMA US&R teams to assist in search and rescue.
5. Coordinate with FEMA US&R team(s) to organize and prioritize search and rescue response.
6. Make a request for search and rescue assistance through the EMAC.
7. Validate plans to integrate FEMA US&R teams into the State's search and rescue response.
8. Validate the conditions of search and rescue staging area(s).
9. Coordinate with SCEMD and the Federal DCO to identify military bases as potential staging areas and military transport resources.
10. Coordinate with ESF-1 to support SCTF-1 transportation requirements.
11. Coordinate with ESF-2 to support SCTF-1 communications requirements.
12. Implement and validate operational procedures, and maintain maps to support earthquake search and rescue operations based on the Operational Area Concept.
13. Coordinate plans to use search and rescue dogs in US&R operations.

C. Recovery

See Recovery Section, Annex 9, (ESF-9) to the SCEOP.

D. Mitigation

See Mitigation Section, Annex 9, (ESF-9) to the SCEOP.

V. **RESPONSIBILITIES**

LLR, Division of Fire and Life Safety

- A. Coordinate and integrate the SC Firefighter Mobilization Plan into this Plan.
- B. Coordinate and integrate SCTF-1 into this Plan.
- C. Coordinate with ESF-1 to support SCTF-1 transportation requirements. SCTF-1 will determine transportation requirements to move search and rescue equipment into Operational Areas.
- D. Coordinate with ESF-2 to support SCTF-1 communication requirements.
- E. Coordinate and integrate FEMA and State US&R teams into the State's search and rescue response to include identifying sites for US&R teams to stage based on the Operational Areas.
- F. In coordination with SCEMD and the Federal DCO, identify military bases as potential staging areas based on Operational Areas and equipment needed such as helicopters, rescue and transport boats, landing craft, LST, hovercraft, etc.
- G. Assist in identifying and providing resources necessary to support SCTF-1 and FEMA US&R teams.
- H. Develop operational procedures, and maintain information data and maps to support earthquake search and rescue operations based on the Operational Area Concept.
- I. Coordinate plans to use search and rescue dogs in US&R operations.
- J. Review and update as necessary the Earthquake Checklist for ESF-9.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-9, Urban Search and Rescue, supports this Annex.

**VII. ATTACHMENT**

Attachment A	ESF-9 Earthquake Checklist
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**ESF-9 (Search and Rescue)**

Date/Time Complete

1.     \* \_\_\_\_\_ Implement the SC Firefighter Mobilization Plan to assist in search and rescue efforts.
2.     \* \_\_\_\_\_ Activate and deploy SCTF-1 for search and rescue response.
3.     \* \_\_\_\_\_ Coordinate with ESF-2 to support SCTF-1 communications requirements.
4.     \* \_\_\_\_\_ Request FEMA US&R teams to assist in search and rescue.
5.     \* \_\_\_\_\_ Validate plans to integrate the FEMA US&R teams into the State's search and rescue response.
6.     \_\_\_\_\_ Validate the conditions of staging area(s), and coordinate search and rescue operations to include US&R teams.
7.     \_\_\_\_\_ Coordinate with ESF-1 to support SCTF-1 transportation requirements to include equipment into Operational Areas.
8.     \_\_\_\_\_ Coordinate with the Federal Defense Office to obtain military assets to transport fire and rescue teams. Needs include rescue helicopters and large troop transport helicopters, other military aircraft, boats, landing craft, LST ships, hovercraft, etc. needed to land personnel and equipment.
9.     \_\_\_\_\_ Coordinate with ESF-1 and ESF-16 on accessibility of transportation routes in the impacted areas.
10.    \_\_\_\_\_ Validate plans to use search and rescue dogs in US&R operations.
11.    \_\_\_\_\_ Maintain information data and maps to support earthquake search and rescue operations based on the Operational Area concept.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 10 (ESF-10)**  
**HAZARDOUS MATERIALS**

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PRIMARY: SCDHEC

SUPPORT: As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

**I. INTRODUCTION**

- A. Due to ground shaking and the potential for liquefaction, HAZMAT may be released from an earthquake based on an M 7.3 earthquake event in the Charleston area. The loss estimation inventory includes ~18,000 HAZMAT sites within the State, and of these, 3,000 (16%) are located within Berkeley, Charleston, Dorchester, Beaufort, and Colleton counties.
- B. If the earthquake situation described within the planning scenario causes or has the potential to cause a radiological release outside the earthquake Operational Areas and/or affects a licensed radiological source, the response to such an incident will be in accordance with Appendix 2, SC Operational Radiological Emergency Response Plan (SCORERP) and SCDHEC Technical Radiological Emergency Response Plan (SCTRERP). These detailed plans contain the response actions for local, state, and federal governments for the four fixed nuclear facilities and the United States Department of Energy Savannah River Site (SRS) facility located in South Carolina.
- C. ESF-10 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

To provide for a coordinated response by state, local, and federal resources to minimize the adverse effects on the population and the environment resulting from the release of, or exposure to, hazardous material following an earthquake.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.

- B. The initial HAZMAT response will be a local effort with priorities set by local government.
- C. ESF-10 will provide technical support for HAZMAT cleanup and disposal immediately following a strong earthquake. ESF-10 will maintain close coordination with SERT and local officials to establish priorities for HAZMAT response support.
- D. Due to the potential of HAZMAT release, Technical Assistance Teams (TATs) will be deployed to the Operational Areas to assess the HAZMAT situation and coordinate technical assistance as prioritized. TATs will report to the designated staging area to coordinate with the Incident Commander (IC) on scene. The deployment will be prioritized according to the actual field reports, known Tier II, and regulated petroleum facilities, in relation to HAZUS projections. See the Attachment B to this Annex for more information on TAT.
- E. The assessment will include the nature, amount, and locations of real or potential releases of HAZMAT, pathways to human and environmental exposure, probable direction and time of travel of the materials, potential impact on human health, welfare, safety, and the environment. An aerial assessment may also be conducted to assess obvious problems such as fires at industrial complexes and petroleum in rivers.
- F. Based on disaster intelligence information ESF-10 will determine resource deficits and request support. The USCG, private contractors, EMAC, the U.S. Army Corp of Engineers, and the Environmental Protection Agency (EPA) may provide assistance in the assessment and clean up efforts.
- G. Coordinate with ESF-1 to provide transportation requirements for TATs.
- H. The concept of operations for a potential radiological release and/or release from licensed radiological sources is to respond and follow existing procedures as outlined in the SCEOP, SCORERP Appendix 2, and SCDHEC SCTRERP as closely as possible. Close coordination with local, State, and federal governments will be essential, and will be adhered as outlined in the Plans.
- I. After the earthquake ESF-10 will assess the status of each affected fixed nuclear facility and immediately report the status to the SERT.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:



**A. Preparedness**

1. Inventory Tier II and regulated petroleum facilities in Operational Areas.
2. Develop procedures for response to HAZMAT incidents in the Operational Areas based on field reports and known potential areas of concern in relation to HAZUS projections.
3. Coordinate with responding agencies within each Operational Area to include determining the personnel and equipment needed to support a hazardous materials incident in the Operational Areas.
4. Assign TATs to Operational Areas.
5. Identify the number of additional response personnel required and coordinate EMAC requests to meet the shortfalls.
6. Review and update procedures for deploying the TATs based on the Operational Area Concept.
7. Prioritize response to HAZMAT incidents, Tier II, and regulated petroleum facilities in the Operational Areas.
8. Examine the need for “specialized resources” based on type and quantities of HAZMAT and the nature and location of the release.
9. Exercise TATs to validate plans and operational procedures.
10. Coordinate plans to ensure that adequate procedures are in effect to respond to a potential radiological release from a fixed nuclear facility(ies) and/or licensed radiological sources due to a strong earthquake where major support by State and federal governments will be required.
11. Develop procedures to communicate with fixed nuclear facilities to assess the level of damage after an earthquake
12. Provide ESF-1 transportation requirements for ESF-10.

**B. Response**

1. Implement ESF-10, Earthquake Checklist, Attachment A to this Annex.
2. Within Operational Areas, determine condition of Tier II and regulated petroleum facilities.

3. Validate resource shortfalls and coordinate federal response, EMAC requests, and additional contractor resources to assist in HAZMAT response.
4. Validate and adjust TAT plans.
5. Maintain communications status with deployed TATs.
6. Verify status of nuclear facilities.

G. Recovery

See Recovery Section, Annex 10, (ESF-10) to the SCEOP.

H. Mitigation

See Mitigation Section, Annex 10, (ESF-10) to the SCEOP.

**V. RESPONSIBILITIES**

SCDHEC, Division of Waste Assessment and Emergency Response

- A. Inventory Tier II and regulated petroleum facilities in Operational Areas. Provide SCEMD GIS layer of Tier II and regulated petroleum facilities per Operational Area for HAZUS.
- B. Develop procedures for response to HAZMAT incidents in the Operational Areas based on HAZUS.
- C. Coordinate with responding agencies within each Operational Area based on the earthquake scenario. Determine the personnel and equipment needed to support a HAZMAT incident in the Operational Areas.
- D. Assign TATs to Operational Areas.
- E. Identify the number of additional technical assistance teams required, and coordinate federal response, EMAC requests, and additional contractors to meet the shortfalls.
- F. Prioritize response to the most critical Tier II facilities in each Operational Area.
- G. Examine the need for “specialized resources” based on type and quantities of HAZMAT and the nature and location of the release.
- H. Exercise TATs to validate plans and operational procedures.

- I. Coordinate plans to ensure that adequate procedures are in effect to respond to a potential radiological release from a fixed nuclear facility(ies) and/or licensed radiological sources due to a strong earthquake where major support by State and federal governments will be required.
- J. Develop procedures to communicate with fixed nuclear facilities to assess the level of damage after an earthquake.
- K. Provide ESF-1 transportation requirements for ESF-10.
- L. Review and update procedures for deploying the TATs based on the earthquake Operational Area Concept.
- M. Review and update as necessary the Earthquake Checklist for ESF-10.

## **VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-10, Hazardous Materials, supports this Annex.

## **VII. ATTACHMENT**

- Attachment A ESF-10 Earthquake Checklist
- Attachment B Technical Assistance Team (TAT)

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**ESF-10 (Hazardous Materials)**

Date/Time Complete

1.     \* \_\_\_\_\_ Validate condition of Tier II and regulated petroleum facilities. Establish priorities of known releases.
2.     \* \_\_\_\_\_ Mobilize and deploy TAT teams (in coordination with SERT Operations) for deployment and coordinate team departure.
3.     \* \_\_\_\_\_ Contact fixed nuclear facilities to determine if damage has occurred due to earthquake. Activate SCORERP and SCTERP if required.
4.     \_\_\_\_\_ Request needed support through EMAC per Agency approval.
5.     \_\_\_\_\_ Review licensed radiological sources response procedures to determine if response to facilities is needed.
6.     \_\_\_\_\_ Validate resource shortfalls and coordinate additional contractor resources to assist in HAZMAT response. Inform SERT of availability of contractors.
7.     \_\_\_\_\_ Coordinate, through SERT Operations Group, to secure services to Federal ESF-10 resources as necessary. Serve as State liaison with federal agencies.
8.     \_\_\_\_\_ Coordinate with ESF-1 and ESF-16 on accessibility of transportation routes in the impacted areas.
9.     \_\_\_\_\_ Provide ESF-1 transportation requirements into the affected area.
10.    \_\_\_\_\_ Maintain communications status with deployed TATs.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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## TECHNICAL ASSISTANCE TEAM (TAT)

### A. Purpose

The TAT will be dispatched to the affected areas of the State to perform the following tasks:

1. Make rapid assessments of hazardous substance incidents.
2. Inspect areas of concern due to the nature of their business or materials known to be present.
3. Perform the responsibilities of the SCDHEC On-Scene Coordinator (DOSC).
4. Ensure that all incidents are stabilized as to minimize impacts to the public health and the environment.
5. Collect and record information onto standard forms and communicate it back to the SCDHEC's Farrow Road Command Center (FRCC), which will provide the information to the ESF-10 representative.
6. Advise the FRCC of resources needed at each particular incident.
7. Request assistance from a monitoring/sampling team if an exclusion (hot) zone entry is to be performed by SCDHEC.
8. Coordinate local efforts and activities with the Region Environmental Quality Control (EQC) office personnel.
9. Interface with and provide technical assistance to local public response efforts and/or affected industries.

### B. Organization

Each of the 12 EQC regional offices has appointed a two-person team. Each team member is currently a trained SCDHEC DOSC. ESF-10 TATs from unaffected regions will be mobilized to respond as soon as possible to assist any area that might be affected and, depending on the impact of an incident, a maximum of six TATs might be dispatched to an affected area of the State during an operational period.

### C. Coordinating instructions

1. Transportation: Teams may assemble at Bureau of Land & Waste Management offices on Farrow Road in Columbia, SC, or, may be

## Attachment B to Annex 10 (ESF-10)

### Technical Assistance Team

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directed to respond from their region office. The FRCC will dispatch teams to areas of concern and direct their field response.

2. Lodging: If overnight lodging is required, the teams will coordinate before departure with its Human Resource Officer.
3. Communications: Each team member will carry an individual pager, and each vehicle will have a cellular phone, a satellite phone, and an 800MHz handheld radio.
4. Reporting Requirements: All communications will be to the FRCC for detailed analysis and further response assignments. TATs may also be assigned special duties involving other EQC program areas based on individual knowledge and availability. The FRCC will monitor and update WebEOC and coordinate TAT activities through the ESF-10 liaison at SERT. An ESF-10 representative will provide reports to SERT Operations Group for discussion and process.



## **ANNEX 11 (ESF-11)**

### **FOOD SERVICES**

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**PRIMARY:** SC Department of Social Services (SCDSS)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected State agencies or other organizations, as noted in this Annex, are assigned additional hazard specific responsibilities for earthquake response:

SC Department of Education (SCDOE), SC Department of Agriculture (SCDOA), ARC, SA

#### **I. INTRODUCTION**

- A. A strong earthquake may deprive substantial numbers of people access to and/or the means to prepare food. It is estimated that 600,000 (2008 estimates) people in Charleston, Berkeley, Dorchester, Beaufort, and Colleton counties will need to be fed two meals a day (this figure includes emergency workers and persons who sheltered in-place ), during the first three days following a M 7.3 earthquake event in the Charleston area. Afterward, this number will continue to rise due to feeding of emergency workers and other persons indirectly affected by the earthquake.
- B. ESF-11 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

#### **II. MISSION**

To coordinate and identify food requirements in disaster affected areas following an earthquake disaster. To secure and distribute food products to include SCDOA food to staging areas within the affected areas.

#### **III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. The loss estimates for feeding requirements in each Operational Area is identified in the loss estimation. See Basic Plan, Attachment C, Table 1.

ESF-11 and ESF-6 will assess the situation daily to determine the requirements to support feeding in the Operational Areas.

- C. The first 72-hours after the event, MRE will be the primary food commodity in the shelters. ESF-11 will coordinate to provide MREs and other food to authorized shelters. If the need arises, ESF-11 can coordinate with logistic cell to obtain MREs on a case by case basis.
- D. ESF-11 and ESF-6 will coordinate MREs requirements, and coordinate with ESF-7 for the procurement of MREs. As soon as possible, other food commodities will be made available. In coordination with ESF-6, ESF-11 will develop plans to transition from MREs to other food commodities.
- E. ESF-11 will coordinate with ESF-1 to request transportation of meal packages. ESF-11 will provide shipping and weight requirements for food supplies.
- F. ESF-11 will coordinate with local school district food supervisors to request inventory food stocks that may be available to feed in the Operational Areas.
- G. In conjunction with county emergency managers, inventory facilities within the Operational Areas capable of storing dry food.
- H. All donated food will require inspection before distributing for possible contamination. ESF-11 will coordinate with ESF-8 to review inspection and embargo procedures for food.
- I. The SA will provide feeding stations and mobile kitchen canteens for displaced population.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

- A. Preparedness
  - 1. Analyze the Loss Estimation Reports prepared by SCEMD for feeding requirements in each Operational Area.
  - 2. Coordinate with local school district food supervisors to request an inventory of food stocks that may be available to feed in the Operational Areas.

3. In coordination with ESF-6, develop plans to distribute food in the Operational Areas.
4. In conjunction with county emergency managers, inventory facilities within the Operational Areas capable of storing dry food.
5. Coordinate with ESF-1 to provide transportation requirements for food commodities to include information on the number of pallets that can be transported by train, boat, or air by Operational Area.
6. In coordination with ESF 6, develop plans to transition from MREs to other food commodities.
7. Develop plans to acquire sufficient food supplies for feeding. Provide information to ESF-7 for their contractual and procurement procedures.

B. Response

1. Implement ESF-11, Earthquake Checklist, Attachment A to this Annex.
2. Validate food requirements for each Operational Area.
3. Assess food stocks to determine available food.
4. Coordinate with ESF-6 to estimate food requirements.
5. Coordinate with ESF-7 to obtain MREs to support food requirements.
6. Assess available storage facilities to store MREs or other food supplies if needed.

C. Recovery

See Recovery Section, Annex 11, (ESF-11) to the SCEOP.

D. Mitigation

See Mitigation Section, Annex 11, (ESF-11) to the SCEOP.

**V. RESPONSIBILITIES**

**A. SCDSS**

1. Analyze the Loss Estimation Reports prepared by SCEMD for feeding requirements in each Operational Area.
2. Develop plans to distribute food in the Operational Areas.
3. Develop plans to acquire sufficient food supplies for feeding. Provide information to ESF-7 for their contractual and procurement procedures.
4. Maintain list of facilities that have capabilities to store non-perishable food supply.
5. In coordination with ESF-6, determine daily food requirements and develop a plan to transition to other food commodities.
6. Provide to ESF-1 food transportation requirements to include information on the number of pallets that can be transported by train, truck, or air.
7. Review and update as necessary the Earthquake Checklist for ESF-11.

**B. SCDOE**

1. In coordination with SCDSS, maintain a list of SCDOA food that is administered by the SCDOE.
2. Coordinate with local school district food supervisors to request an inventory of food stocks that may be available for use in the Operational Areas.
3. Identify likely food shortages and develop corresponding plans to acquire resources.

**C. SCDOA**

Coordinate with ESF-8 to review embargo procedures for contaminated food.

**D. ARC**

1. Identify feeding requirements in each Operational Area.

2. Coordinate with primary agency, supporting agencies, and other volunteer organizations on food distribution requirements in Operational Areas.
3. Coordinate with primary agency to develop a plan to transition from MREs to other food commodities.

**E. SA**

1. Coordinate with primary agency, supporting agencies, and other volunteer organizations on food distribution requirements in Operational Areas.
2. Coordinate with primary agency to develop a plan to transition from MREs to other food commodities.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-11, Food, supports this Annex. |

**VII. ATTACHMENT**

Attachment A      ESF-11 Earthquake Checklist

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**ESF 11 (Food Services)**

Date/Time Complete

1.     \* \_\_\_\_\_   Validate food requirements for each Operational Area.
2.     \* \_\_\_\_\_   Coordinate with ESF-7 to obtain MREs to support food service operations.
3.     \* \_\_\_\_\_   Coordinate with ESF-6 to estimate food requirements.
4.     \_\_\_\_\_       Contact with local school district food supervisors to request an inventory of food stocks that may be available to feed in the Operational Areas.
5.     \_\_\_\_\_       Provide ESF-1 transportation requirements into the area.
6.     \_\_\_\_\_       Assess available resources for food storage following the event.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 12 (ESF-12)**  
**ENERGY**

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**PLEASE SEE ANNEX 12 (ESF-12) TO THE SCEOP  
FOR DUTIES AND RESPONSIBILITIES**

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**ESF-12 (Energy)**

Date/Time Complete

1.     \*\_\_\_\_\_ Coordinate with SERT Operations Group to determine priority of restoration services.
2.     \_\_\_\_\_ Establish lines of communications with utility representatives to request damage assessments from the utilities.
3.     \_\_\_\_\_ Provide SERT information concerning the availability of electrical power and natural gas within the Operational Areas.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 13**  
**LAW ENFORCEMENT**

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**PRIMARY:** South Carolina Law Enforcement Division (SLED)

**SUPPORT:** As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

**I. INTRODUCTION**

- A. State law enforcement support to local law enforcement after a strong earthquake may require providing hundreds of law enforcement personnel from unaffected areas to the impacted area.
- B. ESF-13 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

To provide for coordination and use of law enforcement personnel and equipment in an earthquake disaster for general law enforcement. General law enforcement is inclusive of all law enforcement tasks excluding emergency traffic management (ESF-16).

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. Immediate operational response to a disaster situation is the responsibility of local law enforcement in whose area the disaster occurs. However, due to the widespread regional nature of the event, local law enforcement capabilities may be severely limited. State law enforcement support to local law enforcement will require providing hundreds of law enforcement and security personnel from outside of the disaster areas into the impacted areas.
- C. In preparation for state law enforcement response to manmade or natural disasters, ESF-13 created five areas of operations. Inside each of these

areas, staging areas have been identified for law enforcement personnel and equipment. Every effort will be made to ensure that ESF-13 support to local law enforcement will be an integrated process for the local governments, and that it will be accomplished in accordance with the overall priorities established at the SEOC and Operational Area Concept.

D. ESF-13 will:

1. Coordinate with local law enforcement and emergency managers to provide law enforcement assets as needed. Using the Operational Area Concept, ESF-13 personnel will immediately deploy into the area for public safety operations following an earthquake. Once deployed, law enforcement personnel will report to their assigned staging area, and a law enforcement liaison will be assigned to the Incident Command Post (ICP) in each Operational Area.
2. Provide disaster intelligence to include observation of damage to critical facilities.
3. Coordinate with ESF-1 on transportation requirements for law enforcement personnel and equipment.
4. Coordinate with ESF-2 to determine communication frequencies to coordinate with local law enforcement in the Operational Areas.

E. Immediately after the earthquake, SCDOT will deploy its Seismic Response Teams (SRT) to determine lifeline entry routes into the area. Representatives from SCDPS and SLED will become members of the SRT as lifeline routes are established. SCDPS and SLED support to the SRT Team is to assist in identifying transportation lifelines and help to maintain law and order during the evaluation and inspection of bridges.

F. SLED communications component during an incident will provide specialized technical advice, equipment, deployment of SLED mobile command post, and deployment of backup communications equipment. In addition, SLED will coordinate the deployment of other state communications resources as required.

G. Develop procedures to provide disaster intelligence to SERT on the conditions of correction facilities in the Operational Areas. Intelligence should include locations of damage, inmate accountability, observations on building stability, and if law enforcement assistance is needed.

H. ESF-13 may provide law enforcement support to the Operational Area Transportation Entry Points. See Annex 1, Attachment C, Operational

Area Seismic Reconnaissance List (Map and Table) for a list of transportation entry point locations.

#### **IV. ESF ACTION**

The emergency operations necessary for the performance of this function include but are not limited to:

##### **A. Preparedness**

1. Assign a liaison to the ICP in the Operational Areas.
2. Develop plans to incorporate ESF-13 areas of operations into the Operational Area Concept.
3. Develop plans to deploy law enforcement resources by air and water.
4. Coordinate with ESF-1 to identify transportation requirements to support ESF-13.
5. Develop procedures to provide disaster intelligence to SERT.
6. Coordinate with ESF-2 to determine communication frequencies to coordinate with local law enforcement in the Operational Areas.
7. Assign officers to SCDOT SRT to help to maintain law and order during the evaluation and inspection of bridges and assist in identifying transportation lifelines.

##### **B. Response**

1. Implement ESF-13, Earthquake Checklist, Attachment A to this Annex.
2. Verify communications capability within Operational Areas.
3. Mobilize and deploy law enforcement assets to designated staging areas and ICPs in the Operational Areas.
4. Deploy law enforcement officers to the SRTs to establish transportation lifelines in the Operational Areas.
5. Coordinate with ESF-1 on transportation requirements of personnel and equipment.

6. Obtain status report of aerial assets available to use in earthquake operations.
7. Provide any disaster intelligence information such as roads and bridge failures as well as any damaged buildings as observed by law enforcement officers.
8. Supplement local government communications, if requested.
9. Establish security for critical facilities and essential supplies if requested.
10. Coordinate with ESF-16 and assign officers to SCDOT SRT to assist with establishing lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.

**C. Recovery**

See Recovery Section, Annex 13, (ESF-13) to the SCEOP.

**D. Mitigation**

See Mitigation Section, Annex 13, (ESF-13) to the SCEOP.

**V. RESPONSIBILITIES**

**A. SLED**

1. Assign a liaison to the ICP in the Operational Area.
2. Assign officers to SCDOT SRT to assist with establishing lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.
3. Develop plans to incorporate ESF-13 areas of operations into the Operational Area Concept.
4. Develop plans to deploy law enforcement resources by air and water.
5. Coordinate with ESF-1 to identify transportation requirements to support ESF-13.
6. Develop procedures to provide disaster intelligence to SERT.



7. Coordinate with ESF-2 to determine communication frequencies to coordinate with local law enforcement in the Operational Areas.
8. Develop plans to deploy law enforcement resources using air and water transportation assets.
9. Develop procedures to provide disaster intelligence to SERT.
10. Review and update ESF-13 Earthquake Checklist.

**B. SCDC**

1. Develop procedures to provide disaster intelligence to SERT on the conditions of correction facilities in the Operational Areas. Intelligence should include locations of damage, inmate accountability, observations on building stability, and if law enforcement assistance is needed.
2. Plan for worst-case scenario for prisons following an earthquake.
3. Coordinate with ESF-1 on transportation requirements of inmate and personnel relocation.

**C. SCDPS**

Coordinate with ESF-13 and SCDOT SRT to assign officers to SRT to assist with establishing lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-13, Public Safety, and Security Annex, supports this Annex.

**VII. ATTACHMENT**

Attachment A      ESF-13 Earthquake Checklist

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**ESF-13 (Law Enforcement)**

Date/Time Complete

1.     \* \_\_\_\_\_ Verify communications capability within Operational Areas.
2.     \* \_\_\_\_\_ Assign a liaison to the ICP in the Operational Areas.
3.     \* \_\_\_\_\_ Coordinate with ESF-1 to accompany Seismic Response Teams (SRT) into the impacted areas and assign an officer to each deployed team.
4.     \_\_\_\_\_ Coordinate with ESF-1 for transport of law enforcement personnel and equipment.
5.     \_\_\_\_\_ Obtain status report of aerial assets available for use.
6.     \_\_\_\_\_ Mobilize and deploy law enforcement assets to designated staging areas and ICPs in the Operational Areas.
7.     \_\_\_\_\_ Provide any disaster intelligence information such as roads and bridge failures as well as any damaged buildings as observed by law enforcement officers.
8.     \_\_\_\_\_ Supplement local government communications, if requested.
9.     \_\_\_\_\_ Establish security for critical facilities and essential supplies if requested.
10.    \_\_\_\_\_ Coordinate with ESF-1 and ESF-16 on roads accessibility.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 14**  
**LONG-TERM COMMUNITY RECOVERY AND MITIGATION**

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**PLEASE SEE ANNEX 14 (ESF-14) TO THE SCEOP**  
**FOR DUTIES AND RESPONSIBILITIES**

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**ESF-14 (Long-Term Community Recovery and Mitigation)**

Date/Time Complete

\_\_\_\_\_ Implement SC Recovery Plan  
\_\_\_\_\_ Implement SC Mitigation Plan

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**ANNEX 15 (ESF-15)**  
**PUBLIC INFORMATION**

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**PRIMARY:** Office of The Adjutant General (OTAG), SCEMD

**SUPPORT:** As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department with a declared earthquake disaster.

**I. INTRODUCTION**

- A. After a major earthquake, it can be assumed that media communications will be disrupted due to power outage. Major newspapers may not be capable of publishing and/or distribution for several days. At the same time, public and media demands for information will be tremendous.
- B. ESF-15 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

Provide effective public information through coordination with appropriate federal, State, and local agencies and organizations to minimize loss of life and property before, during, and after an earthquake disaster.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. The South Carolina EAS will be activated appropriately according to established area, state, and national EAS procedures.
- C. Earthquake public information will be disseminated in accordance with public information provisions in the SCEOP. To prevent or minimize earthquake-related loss of life, damage to property, and harm to the environment in South Carolina, government on all levels will provide consistent, coordinated, accurate, and timely information to the at-risk public. The information flow will intensify when the earthquake occurs, and it will continue in the earthquake's aftermath.

- D. Prior to an earthquake, and at least annually in a statewide education campaign, the public will be made aware of potential ill effects and of actions recommended to safeguard lives and property. Information regarding prudent protective actions will be conveyed to the public.
- E. State agencies key to the successful coordination and conveyance of accurate information to the public during a catastrophic earthquake are the South Carolina Governor's Office, SCEMD, SLED, SCDPS, SCDOT, SCDNR, SCNG, SC Department of Parks, Recreation and Tourism (SCPRT), SC Department of Commerce (SCDOC), SCDHEC, SC Department of Insurance (SCDOI), SCDSS, SCDMH, SCETV, and, if an earthquake occurs when public schools are in session, the SCDOE. Also key are county emergency management offices and statewide and local volunteer organizations, including the ARC. All aforementioned agencies and organizations will provide mutual copies of all news releases issued during occurrence of and recovery from an earthquake.
- F. Upon declaration of a State of Emergency by the Governor, ESF-15 will be the primary coordinating element in the dissemination of public information following an earthquake, with the advice and consent of the Governor's Press Secretary. The SEOC will request state-level activation of the EAS when appropriate.
- G. State government information of greatest public interest during and immediately following a catastrophic earthquake will include, but is not limited to, transportation issues, including road closures; medical care issues, including listing of available functional hospitals and healthcare facilities; traffic management; law enforcement; shelter locations; water quality and water-borne disease; nursing home issues; bridge closures; pet and livestock care issues; US&R issues; state office closings, state park closures; insurance issues; power outages; telephone service; and motel availability.
- H. In general, state government news releases will be issued to the news media statewide and to national and international media as appropriate, with priority consideration given to the media most able to effectively communicate with the at-risk population. Samples of new releases and EAS messages that may be issued can be found in Attachment B to this Annex.

#### IV. ESF ACTIONS

- A. Preparedness
  - 1. Develop the best available methods to distribute and broadcast public information following an earthquake.

2. Prepare pre-scripted EAS messages and press releases to disseminate following the earthquake.
3. Develop procedures to determine if media outlets are functioning in the Operational Areas. This intelligence should include the type of facility, location, coverage area, and the ability to relay information.
4. Analyze the Loss Estimation Reports prepared by SCEMD to identify communication stations located in the Operational Areas.
5. Develop operating checklists to ensure that all essential state information is provided to local government if normal means of communications is disrupted.
6. Coordinate with local jurisdictions to provide public information officers (PIO) to ICP in the Operational Areas to support local governments.
7. Conduct workshops with State PIOs to familiarize them with the Operational Area Concept.
8. Identify resource shortfalls (personnel), and develop corresponding plans to obtain resources.
9. Establish post-earthquake reporting requirements for PIOs.

**B. Response**

1. Implement ESF-15, Earthquake Checklist, Attachment A to this Annex.
2. Validate and implement operating procedures to contact media outlets to determine which ones are operational.
3. Edit and issue pre-scripted EAS messages through the best available communications.
4. Validate and implement operating procedures to provide information to the public.
5. Determine requirements for state support to the emergency public information function at county levels.

6. Determine overall staffing requirements (including support to local jurisdictions), and request additional support as required from state and federal resources.

C. Recovery

See Recovery Section, Annex 15, (ESF-15) to the SCEOP.

D. Mitigation

See Mitigation Section Annex 15, (ESF-15) to the SCEOP.

V. **RESPONSIBILITIES**

OTAG, SCEMD

- A. Develop the best available methods to distribute and broadcast public information following an earthquake.
- B. Prepare pre-scripted EAS messages and press releases to disseminate after the earthquake.
- C. Develop procedures to determine if media outlets are functioning in the Operational Areas. This intelligence should include the type of facility, location, coverage area, and the ability to relay information.
- D. Develop operating checklists to ensure that all essential state information is provided to local government if normal means of communications is disrupted.
- E. Coordinate with local jurisdictions to provide PIOs in the Operational Areas to support local governments.
- F. Conduct workshops/exercises with State PIOs to familiarize them with the Operational Area concept.
- G. Identify resource shortfalls (personnel), and develop corresponding plans to obtain resources.
- H. Establish post-earthquake reporting requirements for PIOs.
- I. Review and update ESF-15 Earthquake Checklist.

**VI. FEDERAL INTERFACE**

- A. The National Response Framework (NRF) ESF-15, Public Information and External Communications, supports this Annex.
- B. Federal ESF-15 consists of the following functional components: Community Relations, Congressional Affairs, International Affairs, Public Affairs, State and Local Coordination, and Tribal Affairs.

**VII. ATTACHMENT**

- Attachment A      ESF-15 Earthquake Checklist
- Attachment B      Sample Public Information Statements

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**ESF-15 (Public Information)**

Date/Time Complete

1.     \* \_\_\_\_\_     Validate and implement operating procedures to contact media outlets to determine which ones are operational.
2.     \* \_\_\_\_\_     Validate and implement operating procedures to provide information to the public.
3.     \* \_\_\_\_\_     Edit and issue pre-scripted EAS messages through the best available communications.
4.     \_\_\_\_\_         Determine requirements for State support to the emergency public information function at county levels.
5.     \_\_\_\_\_         Determine overall staffing requirements (including support to local jurisdictions), and request additional support as required from State and federal resources.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**SAMPLE PUBLIC INFORMATION STATEMENTS****A. NEWS RELEASE: Things You Can Do After the Earthquake**

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of **(Location)**, and the danger may not be over. The South Carolina Emergency Management Division indicates there may be aftershocks causing more shaking. If the earthquake has damaged your neighborhood, here are some things you should remember to do:

- ☐ Try to remain calm and in touch with the people around you.
- ☐ Stay off the telephone unless you are contacting emergency services.
- ☐ Put on sturdy shoes or boots to protect your feet from debris and provide ankle support.
- ☐ Store water in a bathtub or large container and sterilize water that wasn't bottled before using it.
- ☐ If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Turn off the gas, using the outside main valve if you can, and call the gas company. If you turn off the gas for any reason, a professional must turn it back on.
- ☐ Clean up broken glass, medicines, and flammable liquids.
- ☐ Take a few moments to rest every hour or so, and consider what you're going to do next.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

**B. NEWS RELEASE: Things NOT To Do After the Earthquake**

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of **(Location)**, and the danger may not be over; there may be aftershocks causing more shaking. If the earthquake has damaged your neighborhood, here are some things official sources warn you **not** to do:

- ☐ (Listed in above release as something you **SHOULD** do?) Do not use matches, lighters, or candles until you are sure there are no gas leaks.
- ☐ Do not use the telephone unless you are calling emergency services.
- ☐ Do not waste water.
- ☐ Do not go sightseeing; you could risk injury or interfere with emergency workers.
- ☐ Do not forget that strong aftershocks are possible at any time.

**Attachment B to Annex 15 (ESF-15)**  
**Sample Public Information Statements** 

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Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

C. NEWS RELEASE: First Steps at Home

**Columbia, S.C. (Date/Time)**--A strong earthquake has hit (**Location**). Officials from the South Carolina Emergency Management Division suggest you do the following if you are at home:

- ❑ Check on your family members. Make sure you know where each member is and their condition. Apply any needed first aid you can until help arrives.
- ❑ Use a fire extinguisher to put out small fires. Don't use water on electrical or gas fires. If you can't put the fire out quickly, get everyone out of the area right away.
- ❑ If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Turn off the gas, using the outside main valve if you can, and call the gas company. If you turn off the gas for any reason, a professional must turn it back on.
- ❑ Inspect your home's foundation, walls, and chimneys. Look and listen for any signs of possible collapse.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

D. NEWS RELEASE: More Steps at Home

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of (**Location**), and the danger may not be over. There may be aftershocks causing more shaking. The South Carolina Emergency Management Division is offering the following advice to people in the affected area:

- ❑ If you are safe where you are, your best bet is to stay there.
- ❑ Discuss any first aid and safety tips you know of with others.
- ❑ Offer help to the people around you, your family, neighbors and coworkers.
- ❑ Isolate flammable liquids and other hazardous materials as much as possible without risking yourself.

- ❑ Check your surroundings for fire, and remove any materials that may cause them to spread.
- ❑ If you must move from where you are now, leave a note on the front door to tell family and emergency workers know where you have gone.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

E. NEWS RELEASE: Next Steps at Home

**Columbia, S.C. (Date/Time)**--A strong earthquake has hit **(Location)**. Officials from the South Carolina Emergency Management Division suggest you should do the following if you are at home:

- ❑ If you're in a safe place right now, stay there if you can. The earthquake danger may not be over yet...there could be strong aftershocks.
- ❑ If you're at home and there's no immediate sign of collapse, fire, or gas leaks, it's time to take a closer look at your utility connections.
- ❑ Turn off any appliance that was on when the earthquake, hit and check it for damage.
- ❑ Check your water heater. If it fell over in the earthquake, it may have broken a gas, electric, or water line.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

F. NEWS RELEASE: Stay Clear of Unstable Structures

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of **(Location)**, and the danger may not be over. There may be aftershocks causing more shaking, and the South Carolina Emergency Management Division is advising people to stay clear of unstable structures.

- ❑ If it is safe where you are right now, you are encouraged to remain there. Do not go outside unless the building you are in is unstable.

**Attachment B to Annex 15 (ESF-15)**  
**Sample Public Information Statements** 

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- ❑ If the shaking starts again, take cover under a sturdy piece of furniture or by an inside wall away from windows and top-heavy objects. You should keep your head and neck covered with your arms until the shaking stops.
- ❑ If you're outdoors when an aftershock begins, stay in the open away from buildings, signs, and overhead wires.
- ❑ Officials are assessing the situation to determine the extent of damage, and if the danger has passed. Residents are encouraged to remain calm and offer assistance to neighbors until help arrives.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

G. NEWS RELEASE: Flashlights Save Lives

**Columbia, S.C. (Date/Time)**--A strong earthquake has hit (**Location**). Officials at the South Carolina Emergency Management Division have consulted with seismologists, who indicate the initial threat from the earthquake apparently has passed. Now is the time to survey your surroundings to determine damage, especially to utilities.

- ❑ If you smell or hear leaking gas, open your windows and get everyone out of the building right away. If you smell smoke, or the structure is in flames, get everyone out of the area immediately.
- ❑ If you think there might be a gas leak, do not switch lights on or off. **If you need more light, use flashlights instead of matches, lighters, or candles.** A spark or open flame could start a fire or cause an explosion.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

H. NEWS RELEASE: On The Road

**Columbia, S.C. (Date/Time)**--A strong earthquake has hit (**Location**). Officials from the South Carolina Emergency Management Division have been advised that aftershocks could follow the earthquake. The Division is advising people who must travel to take the following precautions:

- ❑ It is best to stay off the roads right now, but if you must drive and the shaking starts again, pull over and stop in the first safe place you can find away from overpasses, power lines, and overhanging signs.
- ❑ Once you stop, stay inside your car.
- ❑ If you're on a bridge or an overpass, keep moving - carefully - until you're off the bridge, then look for a safe place to stop until the shaking is over.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

I. NEWS RELEASE: Restrict Telephone Usage

**Columbia, S.C. (Date/Time)**--A strong earthquake has hit (**Location**). Officials from the South Carolina Emergency Management Division have been advised that aftershocks could follow the earthquake. The Division is asking the public to use telephones only for critical communication.

- ❑ The police and fire departments know about the earthquake and are responding to the most serious problems first. Please try not to use the telephone, including your cell phone, unless you are reporting a life-threatening injury or a fire.
- ❑ Unnecessary calls to report the earthquake or to report minor damage could keep life-saving calls from getting through. It is important to locate your friends and family members, but it may be best to wait until the initial confusion has passed.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

J. NEWS RELEASE: Food

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed here has been a strong earthquake in the area of (**Location**). The South Carolina Emergency Management Division is advising the public that although there may be aftershocks causing more shaking, it is not dangerous to consume food at this

**Attachment B to Annex 15 (ESF-15)**  
**Sample Public Information Statements** 

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time. Nevertheless, because of the potential for aftershocks, the public should plan meals carefully.

- ❑ If your power is out, eat the perishable foods and other food in your refrigerator first, then the food from your freezer. You should consider keeping canned goods and nonperishable foods until other stocks are consumed.
- ❑ Unless you're sure your gas and electric connections are safe, cooking outside on a propane grill, a charcoal grill, or a camping stove is advised. Remember that those are only for use outdoors.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

**K. NEWS RELEASE: Water Storage**

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of **(Location)**, and the danger may not be over. The South Carolina Emergency Management Division has been advised that aftershocks could follow the earthquake causing more shaking. The SC Emergency Management Division is advising people to store water.

If your area has suffered earthquake damage, now is the time to store water for later use. Water and sewer services may be interrupted for some time, and it is important you make the best use of the water available.

- ❑ Fill your bathtub and any other large clean containers you have on hand.
- ❑ If your water heater is undamaged, the water inside it will be useful for drinking and cooking.
- ❑ If the water in the storage tank of your toilet is clear, you may be able to use that, as well, but you should not use water from the bowl.
- ❑ Plan on sterilizing any water that isn't already bottled. You can sterilize water by boiling it for five minutes, or by adding three or four drops of liquid chlorine laundry bleach per quart, and letting the mixture stand for half an hour.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

L. NEWS RELEASE: How You Can Help

**Columbia, S.C. (Date/Time)**--Seismologists have confirmed there has been a strong earthquake in the area of **(Location)**, and the danger may not be over. The South Carolina Emergency Management Division has been advised that aftershocks could follow the earthquake causing more shaking. Nevertheless, people in the affected areas can help.

- ❑ Police, firefighters, and medics are dealing with the worst of the earthquake problems. If your area has damage, check in with your family, neighbors, or co-workers. Offer what first aid and assistance you can until emergency workers arrive.
- ❑ You should remember that small children, individuals with special needs, and the elderly might require special attention and reassurance, even if they seem uninjured. Offer any encouragement you can, and assure them that authorities are aware of the situation and will be in the area soon.

Stay tuned to your local broadcast station for additional information from the South Carolina Emergency Management Division.

--END--

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**ANNEX 16 (ESF-16)**  
**EMERGENCY TRAFFIC MANAGEMENT**

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**PRIMARY:** SC Department of Public Safety (SCDPS)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this annex, are assigned additional hazard specific responsibilities for earthquake response.

SC Department of Transportation (SCDOT), SC Law Enforcement Division

**I. INTRODUCTION**

- A. The protection of life and property requirements will exist from the outset of any response to a major earthquake. Immediate actions by every public safety department will be required, and issues will be coordinated according to the priorities establishment by SERT.
- B. ESF-16 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

To provide for coordinated plans, policies, and actions of state and local governments to ensure safe traffic management will be adhered to following an earthquake disaster.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. Following an earthquake, the assumption is that a large mass evacuation will not occur due to the isolation caused by damaged transportation networks. Nevertheless, a coordinated effort to ensure effective traffic management is essential. Emergency Traffic Management activities will be a joint effort of State and local agencies communicating and

coordinating either through ICP, EOCs, or through law enforcement communication channels.

- C. Immediately after the earthquake, SCDOT will deploy its Seismic Response Teams (SRT) to determine lifeline entry routes into the area. Representatives from SCDPS and SLED will become members of the SRT as lifeline routes are established. SCDPS and SLED support to the SRT Team is to assist in identifying transportation lifelines and help to maintain security during the evaluation and inspection of bridges.
- D. ESF-16 may provide traffic management support to Operational Area Transportation Entry Points. See Annex 1, Attachment C, Table 1 for a list of transportation entry point locations.
- E. The HAZUS loss estimation will be used to develop strategies and options to establish traffic control points in the Operational Areas after the disaster. If there is a need to identify evacuation routes, ESF-16 will work in concert with local law enforcement, ESF-13, and SRT to determine the best available evacuation routes.
- F. In coordination with ESF-1 and local emergency managers, identify roads that are critical to remain open in each Operational Area.
- G. Utilizing ESF-16 communications network, officers in the field will provide disaster intelligence information with emphasis on damaged critical facilities and transportation routes.
- H. ESF-16 will staff and/or secure transportation routes within the Operational Area and throughout the state as requested by SERT.

#### IV. ESF ACTIONS

The emergency operations necessary for the performance of this function include but are not limited to:

- A. Preparedness
  - 1. Analyze the Loss Estimation Reports prepared by SCEMD for transportation infrastructure damages by Operational Area.
  - 2. Develop strategies and options to establish traffic control points with ESF-1 and SCEMD in Operational Areas.
  - 3. Coordinate with SCEMD and SRT to identify inspection routes into the Operational Areas.

4. Coordinate with ESF-1 and local emergency managers to identify roads that are critical to remain open in each Operational Area.
5. Coordinate with ESF 13 to provide security for closed transportation routes.
6. Coordinate with ESF-1 to identify transportation requirements to support ESF-16 to include transporting resources by air or sea.
7. Coordinate with ESF-13 and assign officers to SCDOT SRT to assist with establishing lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.

**B. Response**

1. Implement ESF-16, Earthquake Checklist, Attachment A to this Annex.
2. Establish priorities and coordinate with SERT on those priorities.
3. Request personnel in the field to provide disaster intelligence information. The priority of information is road accessibility and damage to critical facilities.
4. Validate the inspection routes for possible lifeline routes. Coordinate with ESF-1 to inspect routes.
5. Implement traffic control management strategies, traffic control points, and coordinate with local law enforcement agencies.

**C. Recovery**

See Recovery Section, Annex 16, (ESF-16) to the SCEOP.

**D. Mitigation**

See Mitigation Section, Annex 16, (ESF-16) to the SCEOP.

**V. RESPONSIBILITIES**

**A. SCDPS**

1. Analyze the Loss Estimation Reports prepared by SCEMD for transportation infrastructure damages by Operational Area.

2. Develop strategies and options to establish traffic control points, if necessary, in the Operational Areas.
3. Coordinate with ESF-1 and SCEMD to identify Primary/Alternate Inspection Routes into the Operational Areas.
4. Coordinate with ESF-1 to identify Diversion Routes into the Operational Areas.
5. Coordinate with ESF-1 and local emergency managers to identify roads that are critical to remain open in each Operational Area.
6. Coordinate with ESF 13 to provide security for closed transportation routes.
7. Develop plans to deploy resources by air and water. Coordinate with ESF-1 to identify transportation requirements to support ESF-16.
8. Assign officers to SCDOT SRT to assist with establishing Primary/Alternate Lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.
9. Review and update ESF-16 Earthquake Checklist.

**B. SCDOT**

1. Coordinate with ESF-16 and local emergency managers to identify roads that are critical to remain open in each Operational Area.
2. Coordinate with SCDPS and SLED to provide information on SRT duties and responsibilities post-disaster.

**C. SLED**

Assign officers to SCDOT SRT to assist with establishing Primary/Alternate Lifelines and maintaining law and order during the evaluation and inspection of bridges after the earthquake.

**VI. FEDERAL INTERFACE**

This Annex has no counterpart in the National Response Framework (NRF). Federal assistance for evacuation is available from the Department of Energy, Department of Transportation, Department of Defense, USCG, Public Health Service, and Nuclear Regulatory Commission through FEMA. Additionally, for multi-state hurricane threats FEMA, through the regional operation center in Atlanta, will establish an Evacuation Liaison Team (ELT) to coordinate multi-state evacuations simultaneously conducted within FEMA Region IV.

**ESF-16 (Emergency Traffic Management)**

Date/Time Complete

1.     \* \_\_\_\_\_ Identify traffic management priorities, and coordinate with SERT Operations Group.
2.     \* \_\_\_\_\_ Coordinate with ESF-1 to establish diversion routes within the Operational Areas.
3.     \* \_\_\_\_\_ Coordinate with ESF-2 to utilize 800 MHz communication systems.
4.     \_\_\_\_\_ Coordinate with ESF-1 to accompany Seismic Response Teams (SRT) into the impacted areas and assign an officer to each deployed team.
5.     \_\_\_\_\_ Provide any disaster intelligence/damage assessment information such as roads, bridge failures, and damaged buildings.
6.     \_\_\_\_\_ Coordinate with SERT Operations Group to establish traffic control points.
7.     \_\_\_\_\_ Staff and control traffic on close transportation routes in damaged areas.
8.     \_\_\_\_\_ If necessary, prepare to support limited evacuation.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 17 (ESF-17)**  
**ANIMAL/AGRICULTURE EMERGENCY RESPONSE**

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**PRIMARY:** Clemson University Livestock-Poultry Health (CULPH)

**SUPPORT:** As directed within the SCEOP, each supporting agency will respond to coordinate the emergency activities of its department for a declared earthquake disaster.

**I. INTRODUCTION**

- A. Following a strong earthquake, there will be damage to barns, fences, and other enclosures that may lead to the release of animals that subsequently roam about unrestricted, endangering the health and safety of humans. There will also be losses to animal and crop-related businesses in affected areas.
- B. Approximately 60% of the displaced households will have companion animals requiring medical care and sheltering. In addition to companion animals, a large number of horses and other livestock in the area will be affected, both by injury and by food/water deprivation.
- C. The State should expect a large number of animals requiring care and sheltering. In addition, there may be carcasses needing disposal.
- D. ESF-17 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

To coordinate veterinary medical care, sheltering, and carcass disposal of animals following an earthquake. To coordinate animal-and agriculture related data during and after emergency response.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. As soon as feasible, the professional animal community should start the relief effort. The three main categories of animal response following an

earthquake are those in need of immediate veterinary medical attention, sheltering, stabling, and the removal and disposal of animal carcasses.

C. ESF-17 will:

1. Coordinate the medical care for all injured animals following an earthquake.
2. Coordinate with local emergency managers to implement their county animal-agriculture response plans, and request veterinary assistance from outside the state.
3. Identify high-density animal populations at risk in the Operational Areas.
4. Estimate the number of Large Animal Rescue Teams (LART) and other personnel resources needed in each Operational Area.
5. Develop a listing of resources available within and outside the State to conduct search and rescue of companion animals, livestock and to provide support in management of wildlife species.
6. Coordinate with USDA concerning animal injury and disease, animal carcass disposal, and animal/agriculture-related public health concerns, coordinating with other Federal agencies as needed.
7. Develop requirements for maintaining the health of pets and livestock after the earthquake.
8. Coordinate with SCEMD public information director to prepare earthquake-specific press releases on pet shelters, medical care, and animal carcass disposal following the earthquake disaster.
9. Assist with development and implementation of an animal sheltering/stabling plan based on the Operational Area concept to include identifying transportation requirements.

IV. **ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

A. Preparedness



1. Identify animal farms and agricultural sites at risk in each Operational Area.
2. Develop a list of resources available in each Operational Area and within and outside the State to conduct search, capture, and treatment of companion animals and livestock, and to provide support in management of wildlife species. This may include Large Animal Rescue/Response Teams (LARTs).
3. Develop plans to use in the Operational Area concerning animal injury and disease, carcass disposal, and animal/agriculture-related public health concerns, coordinating with USDA and other Federal agencies as needed.
4. Prepare pre-scripted earthquake-specific press releases on companion animal shelters, stables, medical care, and carcass disposal following the earthquake.
5. Identify and coordinate with facilities that could provide emergency medical care, hospitalization, and safe storage of feed for animals.
6. Assist with development of an animal sheltering/stabling plan based on the Operational Area concept to include identifying transportation requirements.

B. Response

1. Implement ESF-17, Earthquake Phased Checklist, Attachment A to this Annex.
2. Coordinate with other ESFs and Operations/Tasking Group at the SEOC to determine the priorities and requests for assistance.
3. Implement the plan for sheltering/stabling animals which may include providing assistance with animal transportation, monitoring/tracking shelter activities, providing emergency medical care, hospitalization, responding to requests for supplies, and safe storage of animal feed.
4. Coordinate with ESF-18 on donated supplies for animals.
5. Implement the plan to obtain and coordinate personnel resources to respond to animal-agricultural needs in the Operational Areas. This may include search and rescue as well as support for management of wildlife species.

6. Coordinate requests for assistance concerning animal injuries and disease, carcass disposal, and animal/agriculture-related public health concerns.
7. As much as possible, determine the conditions of the large-scale animal farms in the area. Process damage assessment information to determine needs for assistance.
8. Coordinate with SCEMD Public Information Director to release public information related to animals and agriculture.

C. Recovery

See Recovery Section, Annex 17, (ESF-17) to the SCEOP.

D. Mitigation

See Mitigation Section, Annex 17, (ESF-17) to the SCEOP.

V. **RESPONSIBILITIES**

CULPH

- A. Identify animal farms and agricultural sites at risk in the Operational Areas.
- B. Estimate the number of LARTS and other mobile teams required in each operational area, and develop corresponding plans to mobilize and deploy teams.
- C. In coordination with SCDHEC and other support agencies, develop plans concerning animal injury and disease, carcass disposal, and animal/agriculture-related public health concerns.
- D. Prepare pre-scripted earthquake-specific press releases on companion animal shelters, stables, veterinary medical care, and animal carcass disposal following the earthquake disaster.
- E. Identify and coordinate with facilities that could provide emergency medical care, hospitalization, and safe storage of feed for animals.
- F. Assist with development of an animal sheltering/stabling plan based on the Operational Area concept to include identifying transportation requirements.

- G. Develop a list of resources available within and outside the state to conduct search, capture, and treatment of companion animals and livestock, and to provide support in management of wildlife species. This may include Large Animal Rescue/Response Teams (LARTs).
- H. Assist with damage assessment of farms and agricultural premises.
- I. Coordinate resources during response and recovery for requests concerning animal sheltering/stabling, animal injury and disease, animal carcass disposal, and animal/agriculture-related public health concerns.
- J. Review and update ESF-17 Earthquake Checklist.

## **VI. FEDERAL INTERFACE**

This Annex has no direct counterpart in the National Response Framework (NRF). However, Federal ESF-11 (Agriculture and Natural Resources) functions include Animal and Plant Disease/Pest Response in the NRF. This response includes the implementation of an integrated federal, State, and local response to an outbreak of a highly contagious animal/zoonotic disease, an outbreak of a highly infective exotic plant disease, or an economically devastating plant pest infestation. Further, Federal ESF-8 (Public Health and Medical Services) is responsible for agriculture safety and security, and the protection of animal health under the National Response Plan. Agriculture safety and security includes the safety and security of food producing animals, animal feed, and therapeutics. Protection of animal health includes ensuring the safety of the manufacture and distribution of foods and drugs given to livestock and companion animals.

## **VII. ATTACHMENTS**

Attachment A      ESF-17 Earthquake Checklist

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**ESF-17 (Animal Emergency Response)**

Date/Time Complete

- |    |         |  |
|----|---------|--|
| 1. | * _____ | Coordinate with other ESFs and Operations/Tasking Group at the SEOC to determine the priorities and requests for assistance.   |
| 2  | * _____ | Implement the plan for sheltering/stabling animals which may include providing assistance with animal transportation, monitoring/tracking shelter activities, providing emergency medical care, hospitalization, responding to requests for supplies, and safe storage of animal feed. |
| 3. | * _____ | Coordinate with ESF-18 on donated supplies for animals.  |
| 4. | _____   | Implement the plan to obtain and coordinate personnel resources to respond to animal-agricultural needs in the Operational Areas. This may include search and rescue as well as support for management of wildlife species.  |
| 5. | _____   | Coordinate requests for assistance concerning animal injuries and disease, carcass disposal, and animal/agriculture-related public health concerns.  |
| 6. | _____   | As much as possible, determine the conditions of the large-scale animal farms in the area.   |
| 7. | _____   | Process damage assessment information to determine needs for assistance.   |
| 8. | _____   | Coordinate with SCEMD Public Information Director to release public information related to animals and agriculture.  |

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 18 (ESF-18)**  
**DONATED GOODS AND VOLUNTEER SERVICES**

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**PLEASE SEE ANNEX 18 (ESF-18) TO THE SCEOP**  
**FOR DUTIES AND RESPONSIBILITIES**

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**ESF-18 (Donated Goods and Volunteer Services)**

Date/Time Complete

1. \_\_\_\_\_ Implement SC Recovery Plan
2. \_\_\_\_\_ Activate Donation Module.
3. \_\_\_\_\_ Prepare and coordinate donated resources and volunteer services activities.
4. \_\_\_\_\_ Implement donated resources and volunteer resources activities.
5. \_\_\_\_\_ Request volunteers to support recovery operations.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**ANNEX 19 (ESF-19)**  
**MILITARY SUPPORT**

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**PRIMARY:** OTAG, SC National Guard (SCNG)

**SUPPORT:** As directed within the SCEOP, each supporting agency or organization will respond to coordinate the emergency activities of its department with a declared earthquake disaster.

**I. INTRODUCTION**

- A. Upon the authority of the Governor, the Adjutant General will activate and deploy members of the SCNG to provide military support to civil authorities in accordance to the SCEOP following a strong earthquake.
- B. ESF-19 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

Provide military support throughout South Carolina following a strong earthquake.

**III. CONCEPT OF OPERATIONS**

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. Military support will be required from the outset of any response to a strong earthquake due to the tasks that can be accomplished by the SCNG more expediently and effectively than by another agency of government. However, during a federal activation, ESF-19 resources may be limited. ESF-19 will review the resources available, and develop a response plan accordingly. SERT will make every effort to activate mutual aid and private contracts to provide the resource shortfalls. Resources needed immediately after an earthquake are:
  - 1. Helicopters
  - 2. Tents
  - 3. Debris removal equipment and engineer units

4. Light sets
  5. Mobile Kitchens
  6. Communication equipment
  7. Medical Units
- C. After the earthquake, ESF-19 will identify available resources, inform SERT resources available, and prepare for deployment and utilization of resources upon request.
- D. Plans will be developed to transport resources by air and sea.
- E. ESF-19 / SCJOC will develop plans to stage resources.
- F. Using the SCNG Eagle Vision Satellite System, ESF-19 will provide disaster intelligence information with photographs of the damaged areas.
- G. ESF-19 / SCJOC will develop transportation solutions to move equipment and personnel into damaged areas.
- H. The ESF-19/SCNG communications system will be invaluable in Operational Areas following an earthquake. ESF-19 will coordinate with ESF-2 in establishing communication in accordance with the Operational Area Communications Plan for an earthquake response.

#### **IV. ESF ACTIONS**

The emergency operations necessary for the performance of this function include but are not limited to:

- A. Preparedness
1. Identify by Operational Area resources such as helicopters, generators, and communications equipment available during the period of federal and non-federal activation for an earthquake response.
  2. Coordinate with SCEMD and ESF-2 to provide communications in accordance with the Operational Area Communications Plan for an earthquake response.
  3. Coordinate with SCEMD to develop procedures to use the Eagle Vision Satellite System.

4. Coordinate with ESF-1, SCEMD, and ESF-16 on entry destinations into each Operational Area.
5. Develop plans to stage resources.
6. Develop plans to transport resources by air and sea.

**B. Response**

1. Implement ESF-19, Earthquake Phased Checklist, Attachment A to this Annex.
2. Identify military support priorities and coordinate with SERT Operations Group.
3. Validate critical resources to support the earthquake operations.
4. Coordinate with ESF-1 and ESF-16 to verify entry locations into Operational Areas.
5. Provide communications assistance as required.
6. Implement Eagle Vision Satellite System.

**C. Recovery**

See Recovery Section, Annex 19 to the SCEOP.

**D. Mitigation**

See Mitigation Section, Annex 19 to the SCEOP.

**V. RESPONSIBILITIES**

**Office of the Adjutant General (OTAG)**

- A. Identify by Operational Area resources such as helicopters, generators, and communication equipment available during the period of federal and non-federal activation for an earthquake response.
- B. In coordination with SCEMD and ESF-2, support communications requirements in the Operational Areas.
- C. In coordination with SCEMD, develop procedures to use the Eagle Vision Satellite System following an earthquake, and coordinate procedures with SCEMD.

- D. Develop plans to transport resources by air and sea.
- E. Coordinate with ESF-1 on entry locations into the Operational Areas.
- F. Develop plans to stage resources.
- G. Review and update ESF-19 Earthquake Checklist.

**VI. FEDERAL INTERFACE**

This Annex has no counterpart in the National Response Framework (NRF). ESF-19 will coordinate mission tasking with the Federal DCO when Department of Defense (DOD) resources are committed to ensure efficiency and effectiveness of operations.

**VII. ATTACHMENTS**

Attachment A      ESF-19 Earthquake Checklist

**ESF-19 (Military Support)**

Date/Time Complete

1. \* \_\_\_\_\_ Implement plan to rapidly assemble SCNG units for mission assignments and deployment to State Active Duty (SAD).
2. \* \_\_\_\_\_ Coordinate with ESF-2 to support communications in the Operational Areas.
3. \* \_\_\_\_\_ Assist with Operational Area Communications Team packages, and deploy equipment and personnel upon request.
4. \* \_\_\_\_\_ Implement Eagle Vision Satellite System, and coordinate with SEOC operations on missions.
5. \* \_\_\_\_\_ Validate availability of critical resources to support earthquake operations:
  - Helicopters
  - Tents
  - Debris removal equipment and engineer units
  - Water purification units
  - Generators
  - Light sets
  - Communication equipment
6. \_\_\_\_\_ Coordinate with ESF-1 to verify locations of primary transportation entry points for each Operational Area.
7. \_\_\_\_\_ Validate transportation requirements.
8. \_\_\_\_\_ Validate and implement staging plan.
9. \_\_\_\_\_ Mobilize CST to assist ESF-10 if needed

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.



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**BUSINESS AND INDUSTRY**

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PRIMARY: SC Department of Commerce

SUPPORT: South Carolina Emergency Management Division (SCEMD), SC Parks, Recreation and Tourism (PRT), SC Department of Insurance (DOI), SC Insurance News Service (SCINS), SC Retailers Association, SC Chamber of Commerce, SC Budget and Control Board.

**I. INTRODUCTION**

- A. South Carolina experiences 10 to 20 earthquakes annually. Most of these are so minor they cannot be felt. The historical record of earthquakes in South Carolina makes it clear that earthquakes and their associated seismic hazards exist. Earthquakes can seriously damage buildings and their contents; disrupt gas, electric, and telephone services; and trigger landslides, flash floods, and fires. Aftershocks can occur for weeks following an earthquake. In many buildings, the greatest danger to people is when equipment and non-structural elements, such as ceilings, partitions, windows and lighting fixtures, shake loose. The impact of a large earthquake on business and industry will have direct and indirect effects on the State's economy and its ability to successfully recover from the earthquake.
- B. According to SC Seismic Risk and Vulnerability Study, in terms of economic losses, an earthquake of similar intensity and location to the one in 1886 would result in total economic losses from damage to buildings, direct business interruption losses, and damage to transportation and utility systems could exceed \$20 billion. Direct economic losses due to building damage (excluding business interruption losses) are estimated to exceed \$14 billion. Transportation and utility systems' direct economic losses would exceed \$1 billion. About \$10.9 billion of the total economic losses will probably occur in the tri-county area of Charleston, Berkeley, and Dorchester counties. The building damage alone would cause more than \$4.2 billion in losses due to direct business interruption. Loss estimates include rental income, business income, wages, and relocation expenses.
- C. ESF-24 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

Assist South Carolina business and industry in disaster preparedness, response, mitigation, and recovery actions in response to an earthquake.

### III. CONCEPT OF OPERATIONS

- A. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
- B. Casualties, damage, and destruction are the apparent results and concerns of an earthquake; the less apparent impacts relate to the direct and indirect losses to the economy due to interruptions and losses to businesses and industries. ESF-24 will review and be familiar with the Loss Estimation Reports for the economic loss in each operational area.
- C. ESF-24 will communicate with businesses and industries through available communications in the impacted areas to determine the extent of damage to the businesses and industries and their support needs.
- D. ESF-24, in coordination with SCEMD, will identify businesses and industries by operational area that have a vital function whereas if a critical business function is interrupted, a firm could suffer serious financial, legal, or other damages or penalties. This data will help public officials quickly determine the earthquake's economic impacts. It also will help determine priorities for inspection, restoration of services, repairs, and other actions after the event.
- E. ESF-24 will receive special requests for priority and expedited actions to allow for the restoration of businesses, industries, the financial communities, and critical businesses and industries. Such requests will be generated when local jurisdictions cannot resolve problems; when the size, importance or criticality of a business, industry, facility, or function allows for direct contact with state government; or when a situation may otherwise dictate such requests are appropriate. Examples of assistance may include damage assessment, building inspections, processing of rebuilding plans and permits, road clearance, and communications services. With limited government resources, ESF-24 should give highest priority for assistance to critical businesses and industries that house functions that will help the survivability of the population.
- F. ESF-24 will utilize their existing resource manual and will continue to expand upon it by adding business associations and other organizations that will assist in response and recovery after an earthquake.

- G. ESF-24 will encourage businesses and industries to develop an all-hazards business continuity plan to include information about planning for earthquakes. ESF-24 will provide information to business and industry about what should be included in an earthquake plan. See Attachment B and C to this document for recommended actions for businesses and industries.
- H. ESF-24 will coordinate with SC Recovery Task Force to identify post-earthquake recovery issues that will be of concern to businesses and industries. The type of issues that will affect recover include, but are not limited to:
  - 1. Loss of power.
  - 2. Loss of surface transportation.
  - 3. Loss of traditional sources of revenue.
  - 4. Ability to communicate with customers.
  - 5. Physical loss and damage.
  - 6. Loss of inventory.
  - 7. Potential for permanent loss.
  - 8. Creation of temporary commercial businesses and industries to continue operations.
  - 9. Sources of financial assistances to aid businesses recovery.
  - 10. Personal concerns of employees.
  - 11. Disaster assistance programs.
- I. ESF-24 will encourage businesses and industries to participate in Earthquake Awareness week activities. Examples of activities are conducting earthquake drills, identifying structural and non-structural hazards, and developing a disaster preparedness kit.
- J. ESF-24 will encourage businesses and industries to develop contingency plans for continued operations based on total and/or partial shut downs due to building, utility, communications or transportation failures from the earthquake.
- K. ESF-24 will coordinate with the insurance industry to ensure the availability of adjusters and the State's policy for re-entry after the earthquake.
- L. ESF-24 will coordinate with ESF-15, Emergency Public Information, to provide essential information for release to the public regarding the business/industry.
- M. ESF-24 will identify businesses and industries with engineers that could support SERT in the post-disaster inspection of buildings. SC Budget and

Control Board (SC B&CB), Office of State Engineer (ESF-3), maintains the procedures, and logistic requirements for volunteer engineers.

#### **IV. ESF ACTIONS**

##### **A. Preparedness**

1. Analyze the Loss Estimation Reports for the economic loss in each operational area.
2. Identify businesses and industries by operational area that have a vital function.
3. Develop concepts to provide limited government resources to businesses and industries.
4. Identify the best methods to communicate with businesses and industries in impacted areas.
5. In coordination with SCEMD, make information available to businesses and industries on disaster assistance programs that can assist them after an earthquake.
6. Maintain and expand resource manual to identify groups that can provide specialized technical assistance in the response phase and economic recovery planning process after an earthquake.
7. Encourage businesses and industries to assess their vulnerability by adopting and enforcing seismic building codes, participation in Earthquake Awareness week activities, and developing contingency plans for earliest possible restoration of vital functions after an earthquake. See Attachments B and C to this document for recommended actions.
8. Coordinate with SCEMD to identify businesses and industries with engineers that could possibly support B&CB, ESF-3, in the post-disaster inspection of buildings.
9. Assist business and industry partners in preparation of earthquake plans.
10. Coordinate with SC Recovery Task Force to identify post-earthquake recovery issues that will be of concern to businesses and industries.

11. Promote the benefits of purchasing earthquake insurance in earthquake prone areas.
12. Coordinate with ESF-15 to be prepared to provide essential information for release to the public regarding the business/industry community.

B. Response

1. Implement ESF-24, Earthquake Checklist, Attachment A to this Annex.
2. Communicate with business and industry partners to determine the extent of damages.
3. Provide coordination with businesses and industries to help support lifesaving and life-sustaining efforts.
4. Coordinate with public and private partners to identify critical businesses and industries in the impacted areas. Provide estimates on the earthquake's probable economic impacts.
5. Assist SEOC planners to help determine private-sector priorities for inspection, repair, restoration of services, and other actions.
6. Work with SCEMD to identify and contact business and industry partners who can provide engineers to support the B&CB, ESF-3 response effort. ESF-3 is the point of contact.
7. Identify and contact groups that can provide specialized technical assistance in the response phase and economic recovery planning process after an earthquake.
8. In coordination with SCEMD, prepare and provide business and industry partners a list of federal and state disaster assistance programs to help with the recovery efforts.
9. Coordinate with insurance partners regarding when adjusters will be allowed to enter the affected areas.
10. Coordinate with ESF-15 to provide essential information for release to the public regarding the business/industry community.

C. Recovery

1. Assist in the recovery planning process and request assistance from groups that can aid in the recovery planning process.
2. Assist with, receive reports from, and analyze private sector damage assessment information.
3. In coordination with the Recovery Task Force, contact business and industry partners to determine post-earthquake issues that are of concern to the partners.

D. Mitigation

1. Coordinate with the SCEMD Earthquake Coordinator on activities that can be conducted during Earthquake Awareness Week for businesses and industries.
2. Encourage companies to practice earthquake safety drills, to implement structural and non-structural mitigation to businesses and industries and to promote family preparedness plans with employees prior to an earthquake.
3. Assist in the development of strategies and plans that can be implemented with businesses and industries following an earthquake.

**V. RESPONSIBILITIES**

A. SC Department of Commerce

1. Analyze the Loss Estimation Reports for economic losses in each operational area.
2. By operational area, identify businesses and industries that provide vital functions.
3. Develop concept to provide limited government resources to businesses and industries.
4. Make information available to businesses and industries about assessing their vulnerability to earthquakes, adopting and enforcing seismic building codes, participation in Earthquake Awareness week activities and developing contingency plans for earliest possible restoration of vital functions after an earthquake.

5. Examine alternate methods of communication with businesses and industries in impacted areas to determine the extent of damages.
6. Encourage businesses and industries to develop all-hazards business continuity plans and to include information about planning for earthquakes. ESF-24 will provide information to business and industry about what may be included in an earthquake plan. See Attachments B and C of this Annex.
7. In coordination with SCEMD, provide information on available disaster assistance programs that can assist businesses and industries after an earthquake.
8. Maintain and enhance the resource manual to identify groups that can provide specialized technical assistance in the response phase and economic recovery planning process after an earthquake.
9. Coordinate with the SC Recovery Task Force to identify post-earthquake recovery issues that will be of concern to businesses and industries.
10. Coordinate with ESF-15 to be prepared to provide essential information for release to the public regarding the business/industry community.
11. Participate in drills and exercises to evaluate procedures.
12. Review and update ESF-24 Earthquake Checklist.

B. SC Budget and Control Board, Office of State Engineer

Identify businesses and industries with engineers that could support the post-disaster inspection of buildings.

C. All Supporting Agencies:

1. In coordination with SCEMD, provide information on available disaster assistance programs that can assist businesses and industries after an earthquake.
2. Encourage businesses and industries to participate in Earthquake Awareness week activities. Examples of these activities are conducting earthquake drills, locating structural and non-structural hazards in the facility, and developing disaster preparedness kit.

3. Coordinate with the SCEMD Recovery Task Force to identify post-earthquake recovery issues that will be of concern to businesses and industries.
4. Coordinate with ESF-15 to provide essential information for release to the public regarding the business/industry community.
5. Encourage businesses and industries to assess their vulnerability to earthquakes.
6. Encourage businesses and industries to adopt and enforce seismic building codes.
7. Encourage businesses and industries to develop contingency plans for continued operations based on total and/or partial shut downs due to building/utility/communications/transportation failures from an earthquake.
8. Participate in drills and exercises to evaluate procedures.
9. Promote the benefits of purchasing earthquake insurance, especially in earthquake prone areas.

#### VI. **FEDERAL ASSISTANCE**

This annex has no counterpart in the National Response Framework (NRF). However, DHS and the NRF primary and support agencies coordinate with the private sector to effectively share information, form courses of action, and incorporate available resources to prevent, prepare for, respond to, and recover from incidents of national significance.

#### VII. **ATTACHMENTS**

Attachment A: ESF-24 Earthquake Checklist

Attachment B: Business and Industry: Recommended Actions to Plan for Earthquakes

Attachment C: What to do Before, During, and After an Earthquake for Businesses and Industries



**ESF-24 (Business and Industry)**

Date/Time Complete

- |    |       |   |
|----|-------|---|
| 1. | _____ | Communicate with business and industry partners to determine the extent of damage.  |
| 2. | _____ | Provide coordination with businesses and industries to help support lifesaving and life-sustaining efforts.   |
| 3. | _____ | Coordinate with public and private partners to identify critical businesses and industries in the impacted areas, and provide estimate on the earthquake's probable economic impacts. |
| 4. | _____ | Assist SEOC planners to help determine private-sector priorities for inspection, repair, restoration of services, and other actions.  |
| 5. | _____ | Work with SCEMD to identify and contact business and industry partners who can provide engineers to support the B&CB, ESF-3 response effort. ESF-3 is the point of contact.           |
| 6. | _____ | Identify and contact groups that can provide specialized technical assistance in the response phase and economic recovery planning process after an earthquake.                       |
| 7. | _____ | In coordination with SCEMD, prepare and provide business and industry partners a list of federal and State disaster assistance programs to help with the recovery efforts.            |
| 8. | _____ | Coordinate with insurance partners to when adjusters will be allowed to enter the affected areas.   |
| 9. | _____ | Coordinate with ESF-15 to provide essential information for release to the public regarding the business/industry community.  |

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**Business And Industry: Recommended Actions To Plan For Earthquakes**

- I. The principal focus of this action list is to minimize the impacts of disruptions to business and industry following earthquakes. Following are considerations in preparing for earthquakes:
  - A. Are there plans for conducting initial damage assessments, and identifying unsafe conditions?
  - B. Are there plans to provide continuous communications with employees and other occupants of the building to provide hazard warning, instructions and announcements, status of critical life-lines and emergency services and information about damage and sources of assistance?
  - C. Are plans in place to operate at less than full staffing when employers may not be able to get to worksite due to earthquake damages?
  - D. Is emergency power available to supply critical operations, processes, and emergency equipment?
  - E. Have evacuation plans been developed and tested?
  - F. Is there a plan to determine when it is safe to re-enter buildings?
  - G. Is there a plan to activate security procedures for securing vital records and documents?
  - H. Have First Aid and CPR training courses been offered to employees?
  - I. Have plans been developed to provide for the emergency housing, feeding, and non-medical care of employees and other building occupants if employees are unable to travel to their homes after the earthquake.
- II. The following are steps businesses can take to prepare for earthquakes:
  - A. Mitigation: Activities that eliminate or reduce the probability of occurrence of a disaster or that reduce its damaging effects through protection of the organization's assets include land use controls and equipment purchase. A few examples are:
    - 1. Conduct hazard vulnerability analyses of all buildings and strengthen hazardous structures.
    - 2. Prepare and regularly update disaster plans. Address both response and recovery issues.
    - 3. Institute ongoing training programs in emergency procedures, first aid, CPR, evacuation, search and rescue, use of fire extinguishers, and damage assessment.
    - 4. Consult local building codes to ensure that your building meets or exceeds current structural safety standards.
    - 5. Consider ways to reduce the effects of emergencies, such as moving or constructing facilities away from flood plains and fault zones. Consider ways to reduce the chances of emergencies

- occurring, such as changing processes or materials used to run the business. Conduct engineering surveys of structural and non-structural components.
6. Conduct "hazard hunts" to find nonstructural hazards in offices, storerooms, laboratories, warehouses, and manufacturing areas. Consider the following non-structural mitigation measures:
    - a. Prepare a disaster kit, to include: first aid kit, portable radios & batteries (preferably a NOAA Alert Radio), waterproof plastic bags, tool kits, mops, brooms, buckets, administrative supplies, flashlights, heavy gloves, non-perishable food, and sanitation supplies. Maintain in a secure, accessible location.
    - b. Install fire-resistant materials and furnishings.
    - c. Secure items that could fall or shake loose in an emergency.
    - d. Move heavy or breakable objects to low shelves.
    - e. Attach cabinets and files to low walls or bolting them together.
    - f. Move workstations away from large windows.
    - g. Secure and anchor equipment and furniture, including bookshelves, cabinets, computers, typewriters, water heaters, other gas appliances, and laboratory equipment.
  7. Consider the following structural retrofitting measures:
    - a. Upgrade facilities to meet or exceed seismic building codes.
    - b. Install storm shutters or laminate windows.
    - c. Install fire sprinkler systems.
  8. Educate staff, as applicable, on earthquake effects on high-rise buildings. (Lower floors will shake rapidly. Movement on upper floors will be slower, but the building will move farther from side to side.)
  9. Include articles on business and home earthquake safety in employee newsletters, or provide employees with brochures or flyers.
  10. Obtain agreements with vendors for post-earthquake operations.
  11. Minimize hazmat stored on site by scheduling regular pick-ups.
  12. Elevate equipment such as CPUs and electronic equipment.

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**Business And Industry: Recommended Actions To Plan For Earthquakes**

13. Secure shelves, filing cabinets, tall furniture, desktop equipment, computers, printers, copiers and light fixtures.
  14. Secure fixed equipment and heavy machinery to the floor. Larger equipment can be placed on casters and attached to tethers which attach to the wall.
  15. Add bracing to suspended ceilings, if necessary.
  16. Install safety glass where appropriate.
  17. Secure large utility and process piping.
  18. Keep copies of design drawings of the facility to be used in assessing the facility's safety after an earthquake.
  19. Ask your insurance carrier about earthquake insurance and mitigation techniques.
- B. Preparedness: Activities to pre-plan and organize disaster response. Examples are:
1. Exercise emergency plans.
  2. Review processes for handling and storing hazardous materials. Have incompatible chemicals stored separately.
  3. Establish procedures for evacuation and in-place sheltering after an earthquake.
  4. Determine and post primary and alternate routes for emergency evacuation of the building, should that be necessary after an earthquake. Establish procedures for persons needing evacuation assistance.
  5. Designate areas in the facility away from exterior walls and windows where occupants should gather after an earthquake if an evacuation is not necessary.
  6. Identify first response medical team and emergency procedures training.
  7. Develop and exercise emergency assignments and recall procedures.
  8. Keep company vehicles filled with fuel.
  9. Keep cell phone batteries charged.
  10. Designate primary emergency operations control center and alternate headquarters.

11. Inventory emergency equipment.
  12. Identify critical records and equipment for evacuation or relocation.
  13. Protect, relocate or duplicate vital records.
  14. Confirm continuity of management plan.
  15. Determine adequate means of securing equipment unable to be stored inside.
  16. Reaffirm shelter arrangements.
  17. Video or photograph inventory.
  18. Conduct earthquake drills.
  19. Perform regular, routine backups of computer systems.
- C. Response: Activities to assist disaster victims reduce further damage and speed recovery. Examples are the implementation of:
1. First aid stations and the commitment of fire-rescue personnel and equipment. Life safety should be the first priority.
  2. Emergency Control Center operating procedures and establish direction and control.
  3. Warning and communications systems.
  4. Emergency shutdown procedures if necessary.
  5. In-Place Sheltering or evacuation procedures.
  6. Damage assessment and control procedures.
  7. Radiological monitoring.
  8. Public information procedures.
  9. Industrial mutual aid procedures.
  10. Contingency checklists for inspection, repair, restoration of services, and other actions.
- D. Recovery: Actions designed to address business resumption functions that are beyond the time-sensitive issues of the response phase. Examples are:
1. Repair of the primary site and the restoration of routine business activities.

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**Business And Industry: Recommended Actions To Plan For Earthquakes**

2. Conduct a comprehensive damage survey of the facilities to determine the need for temporary relocation and/or the timing of re-occupancy.
3. Clean-up of company properties including securing contractors support to supplement crews in the repair of damaged facilities.
4. Restore essential business facilities and/or establish temporary facilities, ensure key personnel report to work sites or alternate headquarters, restore damaged utility systems to minimal operating levels and control access to company facilities.
5. Implement alternate sources of essential supplies and replacement parts if your normal vendors are unable to function after the earthquake.
6. Provide information to the news media about service hours, location of operations, and any changes in procedure.
7. Decide on a course of action for long term recovery, participating in on-going community preparedness and recovery, reconstruction planning, and decision making.

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**Business And Industry: What To Do Before, During, And After An Earthquake**

**I. BEFORE AN EARTHQUAKE:**

- Prepare a company earthquake preparedness plan. You can reduce injuries to employees and lessen the possibility of panic after the earthquake has occurred by planning for all eventualities.
- List for employees the possible means of taking shelter during an earthquake and hold occasional drills so that they will have the opportunity to practice. Tell them not to leave the building during the earthquake.
- Have available for immediate use the telephone numbers of and alternative means of communication for public safety agencies including police, fire, medical, and utilities.
- Check all offices, storage areas, manufacturing areas and other work areas for earthquake hazards.
- Brace or anchor high or top heavy shelves, machinery or any other equipment which could fall during a tremor.
- Bolt down or provide other strong support for water heaters and other gas appliances on the premises since fire damage could result from broken lines and connections.
- Prepare several alternate routes of evacuation for employees in the various parts of the building should they need to leave their work area because it is unsafe.
- Consider all possibilities should destruction occur. What if those on upper floors cannot descend to the ground floor? What if employees are trapped in the basement?
- Appoint at least two persons in each department or on each floor who will assume leadership roles after the earthquake has occurred and be sure they are properly trained.
- Consider the possibility that employees may not be able to leave the premises and keep supplies on hand which will be needed. These include one or more battery-powered radios and extra batteries, flashlights and extra batteries, at least a 72-hour supply of food and water for each employee, blankets, and adequate first aid supplies. Encourage employees to keep a few personal toilet articles on hand at work, such as a toothbrush, small toothpaste tube and small bar of soap.

- Plan assistance for physically handicapped employees who are unable to leave the building or areas of the building without the aid of another person.
- Designate areas of the building which may be suitable as shelter areas should employees be required to stay there after the earthquake.
- Ensure extinguishers are kept in good working order and that several employees in each work area know how to operate them.
- Consider alternate means of ventilation and lighting if the power is off, If your building is windowless.
- Urge employees to have a plan for reunification of their families should they be unable to leave the premises to return home immediately.
- Develop contingency plans for continued operations of your company/plant based on total and/or partial shut downs due to building/utility/communication/ transportation failures. Include key personnel, communication systems, utilities, and other support needed for 24 hours, 72 hours, one week and one month.
- Discuss and distribute the company earthquake plan with employees and be sure each one understands all phases of the plan.

## **II. DURING THE EARTHQUAKE:**

- Drop, cover, and hold on. Move only a few steps to a nearby safe place. It is very dangerous to try to leave a building during an earthquake because objects can fall on you. Many fatalities occur when people run outside of buildings, only to be killed by falling debris from collapsing walls. Only use a doorway for shelter if it is in close proximity to you and you know it's a strongly supported, load bearing doorway.
- If you are outdoors, find a clear spot away from buildings, trees, streetlights, and power lines. Drop to the ground and stay there until the shaking stops. Injuries can occur from falling trees, street-lights and power lines, or building debris.
- If you are in a moving vehicle, stop quickly, and avoid stopping near or under buildings, trees, overpasses and utility wires. When the earthquake stops, avoid driving on roads, bridges or ramps that might have been damaged.

**Business And Industry: What To Do Before, During, And After An Earthquake**

- Stay indoors until the shaking stops and you're sure it's safe to exit. After the shaking has stopped, if you go outside, move quickly away from the building to prevent injury from falling debris.
- Stay away from windows. Windows can shatter with such force that you can be injured several feet away.
- In a high-rise building, expect the fire alarms and sprinklers to go off during an earthquake. Earthquakes frequently cause fire alarm and fire sprinkler systems to go off even if there is no fire. Check for and extinguish small fires, and, if exiting, use the stairs, do not use elevators.

**III. AFTER AN EARTHQUAKE**

- After an earthquake, expect aftershocks. These are usually less violent than the main earthquake, but can be strong enough to cause additional damages and can occur hours, days, weeks or even months after the earthquake.
- Employees should immediately check for injuries among fellow workers and render first aid as needed. Seriously injured persons should not be moved unless they are in danger of further injury.
- Check for fires and fire hazards, especially for gas leaks and damaged electrical wiring. See that these are turned off at main valves and/or circuit breakers as required.
- Check for building damage and move employees to safe areas.
- Do not permit employees to use elevators or to run into the street.
- Flashlights should be used if power goes out since sparks from a match or light switch could ignite leaking gas.
- Immediately clean up dangerous spills.
- Do not use telephones for outside calls except in genuine emergencies. Use battery-powered radios for damage reports and information from public safety agencies.
- Designated leaders should immediately organize those employees for whom they are responsible and determine what steps are to be taken in accordance with the company's earthquake plan.

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